

ALAMEDA NAVAL AIR STATION

ALAMEDA, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVFACENGCOM
 Size: 2,634 Acres
 Funding to Date: \$68,281,000
 Estimated Funding to Complete: \$145,306,000



Base Mission: Closed; NAVFAC is caretaker until transfer. Previously maintained and operated facilities and provided services and material support operations for Naval aviation activities and operating forces

Contaminants: Acetone, chlorinated solvents, cyanide, benzene, ethylbenzene, heavy metals, pesticides/herbicides, methylene chloride, POLs, PCBs, semi-volatile solvents, toluene, volatile organic solvents, xylene

Number of Sites:		Relative Risk Ranking of Sites:	
CERCLA:	23	High:	14
RCRA Corrective Action:	0	Medium:	10
RCRA UST:	7	Low:	5
Total Sites:	30		

	BRAC III
Sites Response Complete:	1

EXECUTIVE SUMMARY

Naval Air Station (NAS) Alameda is located on Alameda Island, which lies at the western end of the city of Alameda in Alameda County, California. NAS Alameda was listed for closure by the 1993 Base Realignment and Closure (BRAC) commission and is scheduled for closure 30 April 1997. The BRAC Cleanup Team (BCT) was initiated in FY93 and immediately began an Environmental Baseline Survey (EBS) which has been completed. A BRAC Cleanup Plan was completed in FY94 and is currently in its third edition. Navy operations which contributed to prominent site types include landfilling, discharge through storm drains to create offshore sediment sites, plating and painting shops, and transformer storage areas. A former oil refinery also exists at NAS Alameda. The Navy changed its operational processes to prevent further contamination. Prominent installation restoration sites include soil, groundwater and sediment contamination of substances like petroleum, SVOCs, TCE, PCBs, and metals. A Federal Facilities Site Remediation Agreement (FFSRA) was initiated in FY93 with the State of California but has not been signed. The State did issue a Remedial Action Order for the Skeet Range and several other sites.

NAS Alameda is predominantly a man-made extension to Alameda Island. The fill layer of unconsolidated sediments ranges from 7 to 30 feet deep. The base is surrounded on three sides by waters of the San Francisco Bay. There are no naturally occurring surface streams or ponds on NAS Alameda. Surface water either infiltrates to the groundwater or runs off into storm drains that discharge to San Francisco Bay. Many of these storm drains are at sea level. Presently groundwater under the base is designated as a municipal drinking water source though no groundwater is used for water supply on NAS Alameda. NAS Alameda and the Regional Water Quality Control Board are re-evaluating the designation and probable beneficial uses of the groundwater to determine the most appropriate cleanup levels.

Information Repositories are located at the Main Alameda Public Library and at the NAS Alameda Library. A Technical Review Committee (TRC) was formed in FY90 and converted to a Restoration Advisory Board (RAB) in

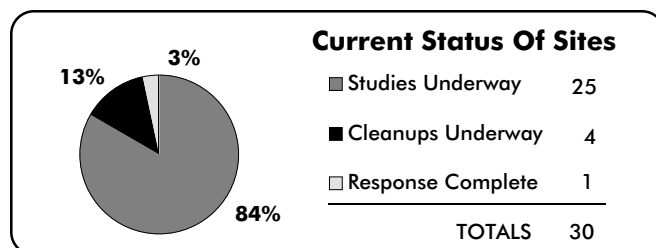
FY93. The RAB has 3 2 members who meet monthly. The RAB has coordinated and advised the BCT making positive changes in the progress of the IR program and the community relations plan.

At the end of FY96, the investigation portion of the Remedial Investigation/Feasibility Study (RI/FS) phase for 23 sites was complete. Removal Actions at several sites are underway. Additionally, 5 ongoing treatability studies are helping to accelerate the cleanup at NAS Alameda. A Record of Decision (ROD) will be signed for on Operable Unit (group of sites) at NAS Alameda in FY98. The remaining three Operable Units will be signed in FY99/00 with Remedial Design in years 2000 and 2001.

The Site 16 removal of PCBs and lead contaminated soil is scheduled for FY97. To reduce immediate hazards caused by methane gas buildup at Site 2 (West Beach Landfill), a fence was constructed around the landfill perimeter and the methane gas was vented. Studies for potential early treatability of sediments at the Seaplane Lagoon are being conducted along with studies to determine the bio-availability and the lateral and vertical extent of contamination. Use of innovative technologies and active partnering will accelerate long term cleanup and decrease cost. In FY95, NAS Alameda secured a contract with the University of California, Berkeley, to explore innovative technologies as applied to treatability studies.

Sixty abandoned tanks and surrounding soil were excavated and removed in FY95 from an Underground Storage Tank (UST) site. Plans for removing 44,000 feet of abandoned fuel lines were completed in FY95 at another UST site and preliminary soil and groundwater sampling has been done to facilitate cleanup.

Several parcels have been leased, including a lease to the electric car company CALSTART. Further, a large FOSL sector covering one quarter of the base is in preparation. The LRA has several companies lined up to occupy these buildings. To coordinate reuse needs with cleanup, the BCT and LRA meet monthly to discuss schedules, immediate requirements and long term goals to expedite the transfer and conversion of the base.



ALAMEDA NAS RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Alameda NAS is located on Alameda Island. Alameda Island lies along the eastern side of the San Francisco Bay and is separated from the city of Oakland by the Oakland Inner Harbor. To the west and south of Alameda NAS is the San Francisco Bay. There are no naturally occurring surface streams or ponds on NAS Alameda. Surface water either infiltrates to the groundwater or runs off into storm drains that discharge to San Francisco Bay. Many of these storm drains are at sea level. Presently, no groundwater is used for water supply on Alameda Island or in Oakland, but NAS Alameda has been examining groundwater for potability.



NATURAL RESOURCES - The endangered California Least Tern breeds and nests on Alameda Island. This is the largest colony of Least Terns in Northern California. In 1984, there were 47 nesting pairs, now there are 128 nesting pairs. This was due to an active management plan that removed the predators. The hatch of this year was at a record 200 chicks. This breakwater island is one of the only night roost areas for California Brown Pelicans in the San Francisco Bay. Many other species of birds nest here and the island is frequented by migratory birds such as Caspian Terns, Canadian Geese and Western Gulls. Elephant Harbor Seals and other marine animals also use this breakwater island.



RISK - Phase I of the Ecological Assessment Plan was completed in FY93. A survey was conducted as part of the Ecological Assessment to identify and delineate two wetland areas and to determine potential impacts on the wetlands from Installation Restoration Program (IRP) sites. Phase I of the Ecological Assessment is now completed. The ecological risk to the two wetland areas and potentially impacted offshore areas is greater than the risk to human receptors and will therefore serve as the major risk driver.

Under the DOD Relative Risk Site Evaluation Model, 12 CERCLA sites and two UST sites at NAS Alameda received a high relative risk ranking. The ASTM Risk Based Corrective Action methodology for cleanup at TPH sites is being used at NAS Alameda. Sites 4 and 22, and USTs 3 and 8 all have contaminants that include petroleum products and volatile organic compounds affecting groundwater. However, the groundwater may be designated as a non-potable source thereby relaxing cleanup levels. Site 17 (Seaplane Lagoon) and Site 20 (Oakland Inner Harbor) have contaminants that include semi-volatile organic compounds, the chemical additive PCB, pesticides and metals affecting sediment. Contaminated sediment may impact humans via the ingestion of contaminated shellfish and fish.

The remaining eight high relative risk sites include a landfill, abandoned fuel storage tanks, the former oil refinery area, a plating shop, pest control areas and a transformer storage area. Soils in these areas were found to be contaminated with the chemical additive PCB, semi-volatile compounds, pesticides, metals and petroleum products. Human receptors may include current and future on-site workers through inhalation and dermal contact. Two sites, Site 1 and Site 2 (West Beach Landfill) have contaminants that may affect soil and sediments. Receptors for these areas also include ecological receptors (flora and fauna) and numerous threatened and endangered bird species. NAS Alameda has presented its risk assessment approach to regulators and is now implementing that approach.

REGULATORY ISSUES



LEGAL AGREEMENTS - A Federal Facilities Site Remediation Agreement (FFSRA) was initiated in FY93 with the State of California. It remains in negotiations and is unsigned. The FFSRA will contain a Site Management Plan (SMP) for scheduling of cleanup activities.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in FY90 and met quarterly. The TRC was converted to a Restoration Advisory Board (RAB) in FY93. Some of the original TRC members are on the RAB. The first formal RAB meeting was held in April 1994. The RAB has 32 members from the community, the Sierra Club, school district, a public health official the Alameda Reuse and Redevelopment Authority (ARRA), and NAS Alameda. The RAB meets monthly. Focus groups also meet to discuss charter interests. The RAB has developed a charter which identifies and resolves issues and ensures that all stakeholders have ample opportunity to advise the BCT in the decision-making process. The RAB had presentations and training on the CERCLA process, early actions, treatability studies, and a session on geology. Some RAB members have also participated in RAB workshops. The Community Outreach Focus Group is developing ways to communicate environmental issues with the public.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in FY89 and identified the efforts that would be taken to keep the community informed on the base cleanup issues. This plan is in the process of being updated, with expected completion during FY96. Updated the Community Relations Plan (CRP), final revised CRP will be released in early FY97.



INFORMATION REPOSITORY - An Administrative Record was established in FY89. Information Repositories are located at the Main Alameda Public Library and at the NAS Alameda Library. Copies of the Administrative Record documents are contained in the local Information Repositories.

BASE REALIGNMENT AND CLOSURE



BRAC - NAS Alameda was placed on the Base Realignment and Closure (BRAC) list in September 1993. Operational closure is scheduled for April 1997.



BRAC CLEANUP TEAM - The BRAC Cleanup Team (BCT) was initiated in FY93 and is committed to the use of innovative technologies and treatability studies. This will accelerate cleanup and reduce future remedial action expenditures.



DOCUMENTS - An EBS identified 208 parcels of land for potential reuse. Parcels will be recategorized in early FY97. Transfer of parcels and accelerated cleanup actions are a high priority. A revised BCP will be completed in FY97. The Phase I EBS (Community Environmental Response Facilitation Act of 1992 (CERFA) Determination) designated six parcels as Category 1. The Phase II EBS investigated the remaining 202 parcels. Designations are expected to readjust at least 30% of the Category 7 parcels to Categories 2 and 3. Category 7 applies to those parcels where the environmental conditions have not been classified, while a Category 2 or 3 applies to parcels that are environmentally sound and available for transfer.

Environmental Conditions of Property Classification

1	2	3	4	5	6	7
3 acres	0 acres	0 acres	0 acres	348 acres	380 acres	905 acres



REUSE - The Alameda NAS reuse plan is being coordinated through the following organizations, Alameda Reuse and Redevelopment Authority (ARRA), Alameda Base Reuse Advisory Group (BRAG), and the East Bay Conversion and Reinvestment Commission (EBCRC), as well as focused interaction with the BCT. The City of Alameda has also established a Base Closure Department which supports the ARRA, coordinates with the Navy, the BRAG, as well as other commissions and agencies that have reuse jurisdiction in areas such as air and water quality,

ALAMEDA NAS RELEVANT ISSUES

transportation planning, seaport, and shoreline. The City of Alameda has an Interim Reuse Plan, covering the 10-15 years following base closure. The Final Long-Term reuse Plan was completed January 1996. The initial plan was to lease structures where similar current functions can be maintained. The next initiative is to lease in furtherance of conveyance and finally to transfer.



FAST TRACK INITIATIVES - Early removal actions will be used to eliminate hot spots and sources to expedite property transfer. Innovative technologies will accelerate cleanup and decrease cost. Active partnering with agencies in conjunction with responsible decision making will accelerate Findings of Suitability to Lease (FOSL), IRP and decrease cost. Several removal actions are complete and several more are planned for FY97 including two radiological removals, and the removal of PCB and lead contaminated soil.

Priority planning and streamlined contracting procedure lead to improved teamwork between the Navy and other agencies. All buildings at the installation were evaluated for asbestos to determine the need for further action or emergency cleanup.

Issues needing regulatory review include approaches for identifying background and ambient conditions, approaches to risk assessments and criteria for reviewing EBS material and FOSLs and for integrating new sites into the IRP. NAS Alameda has learned to make the most of its limited funds to continue cleanup programs. Base closure adds a further dimension in that it requires regulators and the Navy, to evaluate programs not only in terms of protectiveness, but also in terms of the community's reuse plan. Only with adequate funding and staffing will regulatory agencies be able to meet this new challenge creatively and meaningfully.

HISTORICAL PROGRESS

FY83

Sites 1-12 - An Initial Assessment Study (IAS) was completed and identified 12 potentially contaminated sites. Sites 8-12 (currently known as Sites 20-22, 13 and 14) were found not to pose a threat to human health or the environment. Sites 1-7 (currently known as Sites 2, 1, 17, 3, 15, 16 and 4) were recommended for further investigation because of their potential effect on human health and the food chain, in particular the endangered California Least Tern.

FY85

Sites 1-4 and 15-17 - A Confirmation Study (CS) was completed and found heavy metals and organic compounds in soils and groundwater. Resampling was recommended to confirm the groundwater results. Sites 1-4 were recommended for further investigation. Sites 15-17 were recommended for No Further Action (NFA).

FY87

Sites 1-20 - The EPA Region IX and the California Department of Toxic Substances Control required that these sites be studied in the RI.

FY88

Sites 1-20 - The RI/FS was initiated with the development of RI/FS work plans.
Sites 1 and 2 - The California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region required that a Solid Waste Assessment Test (SWAT) be conducted at these two sites to determine if hazardous waste was migrating from the landfill into San Francisco Bay.

FY93

Sites 1-20 - Initiated Field Sampling and Data Summary report. Initiated Ecological Assessment.
Sites 1 and 2 - The Draft Final Solid Waste Water Quality Assessment Test Report (Phases 5 and 6) was completed. The report concluded that volatile and semi-volatile organic compounds appear to have migrated from these sites to off-site groundwater.

FY94

Basewide - Completed Phase I of Environmental Baseline Survey.
Site 13 - An IRA to remove lead and acid contaminated soils was completed. The Department of Toxic Substances and Control (DTSC) and the RWQCB San Francisco required the IRA.

FY95

Basewide - Plans and specifications for removing 44,000 ft of abandoned fuel lines was complete. Preliminary soil and groundwater sampling was done to facilitate cleanup.
All Sites - Phase I of the Ecological Assessment was completed. Human Health Risk draft report was completed. A Data Summary document was completed.
Site 7 - Removal of four USTs and contaminated soil around tanks was completed.
Site 15 - Excavation of PCB and lead contaminated soils was started.
Site 5 - A bench scale testing was performed for a site demonstration by Lockheed called electrokinetic remediation, to remove metals and other ionic compounds near the old plating shop. Studies for potential early treatability of sediments at the SeaPlane Lagoon were started. Minor characterization was recommended to determine bioavailability and the lateral and vertical extent of contamination.
Site 16 - Began Engineering Evaluation/Cost Analysis (EE/CA) for removal of petroleum, the chemical additive PCB and lead contaminated soil.
Site 18 - Time-critical removal action; debris from catch basins was removed.

FY96

All Sites - Phase II of the Ecological Assessment underway. Revised the Long-Term Monitoring Plan.
Sites 1 and 2 - Radiological grid surveys were completed.
Sites 5 and 10 - Radiological surveys of radium paint areas were completed.
Site 5 - The pilot scale demonstration by Lockheed of electrokinetics ongoing.
Site 17 - Studies for potential early treatability of sediments at the SeaPlane Lagoon are underway. Minor characterization was recommended to determine bioavailability and the lateral and vertical extent of contamination.
Site 18 - The time-critical removal action continued to remove sediments from the storm sewer lines.
Sites 2, 3, 13 and 17 - Treatability studies are underway through UC Berkeley. These studies will evaluate the feasibility of using innovative technologies and examine Intrinsic Bioremediation of contaminated sediment.
Steam enhanced extraction has been evaluated (bench-scale) at Site 13.
Site 15 - Excavation of contaminated soil was completed. Site 15 was back filled with clean soil. Contaminated soil was stockpiled at a protective area waiting for treatment.
Site 16 - Initiated a removal action.
USTs - Remedial Design for UST sites, planned for FY96, postponed to FY97 due to funding constraints.
Basewide - Completed Phase I and II of EBS. Recategorization of parcels was begun in FY96 and will be complete in FY97. Delay was due to lengthy negotiations with regulators regarding background level.

ALAMEDA NAS PROGRESS DURING FISCAL YEAR 1997

FY97

Sites 1-20 - Initiate treatability studies for 5 sites through the CLEAN Contract. Began the final phase of the aquatic and terrestrial ecological assessment. Developed a consolidated waste unit for disposal of contaminated soils.

Sites 1 and 2 - Radiological surveys of landfills were started.

Sites 5 and 10 - Began design of decontamination of elevated levels of radiation.

Site 16 - Removal action implementation was started.

Site 18 - The removal of waste and debris from storm sewer lines and manholes is completed.

Sites 2, 3, 13 and 17 - Treatability studies by University of California at Berkley (UCB) continue.

Site 1 - Demonstration by University of Waterloo for treatment of chlorinated solvents and BTEX (benzene, toluene, ethylbenzene, xylenes) in groundwater was continued.

Site 5 - Demonstration of electrokinetic technology for the removal of metals from soils at former plating shop continued. Demonstration by Resolution Resources of 3-D Seismic Profiling to identify DNAPL (dense non-aqueous phase liquid) in subsurface was completed.

Site 15 - start the removal of Site 15 soil at the Temporary Storage and Treatment Area (TSTA).

Site 5 - Treatability study by UCB initiated for natural attenuation of chlorinated solvents.

Base-wide FOSL completed for entire base prior to base closure.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Basewide - Initiate ROD and RD/RA. **Storm water system** - Initiate the survey of potential contaminated groundwater infiltration.

OU 1 - Complete the RI/FS report for OU 1.

Sites 7, 14, 15, 16 and 22 - Complete the removal actions.

Sites 15 and 16 - Complete the soil removal from Site 16 and the TSTA of the Site 15 soil.

OU 3 - Issue the RI report.

Site 1 - Summary report for University of Waterloo Funnel and Gate treatment to be completed.

Sites 3 and 13 - Treatability study by UCB on Intrinsic Bioremediation of Petroleum Hydrocarbons will be completed.

Sites 2 and 17 - Treatability study by UCB on Intrinsic Sediment Processes will be completed.

Site 5 - Treatability study by UCB on Natural Attenuation of Chlorinated Solvents will be completed.

All Parcels - Complete Environmental Condition of Property and supporting EBS for.

FY99

OU 1 - Complete cleanup and transfer.

OU 2 and 4 - Issue RI reports.

OU 3 - Issue FS report.

Basewide - Complete FOSTs once NEPA ROD is completed for at least 70% of the property.

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	10							
RI / FS			23					
RD			6	2	3			
RAC				4	3	2	2	
RAO								7
IRA			6(6)	5(5)				
RC			12		1	2	1	7
Cumulative % RC	0%	0%	52%	52%	57%	65%	70%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA		5	1	1				
CAP		4	1		1			
DES			5			1		
IMP	1	1		1	2	2		
IMO						5		1
IRA		6(6)		1(1)				
RC		1				5		1
Cumulative % RC	0%	14%	14%	14%	14%	86%	86%	100%

ALAMEDA NAVAL AND MARINE CORPS RESERVE CENTER

ALAMEDA, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVRESFOR
 Size: 10.64 Acres
 Funding to Date: \$74,000
 Estimated Funding to Complete: \$144,000



Base Mission: Trains, administers and mobilizes Navy and Marine Corps Reserve units.

Contaminants: POLs

Number of Sites:

CERCLA: 0
 RCRA Corrective Action: 0
 RCRA UST: 2
 Total Sites: 2

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 1
 Medium: 1 Not Required: 0
 Low: 0

Sites Response Complete: 0	

PROGRESS AND PLANS

UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA		2						
CAP			2					
DES								
IMP								
IMO								
IRA								
RC			2					
Cumulative % RC	0%	0%	100%	100%	100%	100%	100%	100%

AZUSA NAVAL COMMAND CONTROL AND OCEAN SURVEILLANCE CENTER, MORRIS DAM FACILITY AZUSA, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMSPAWARSSCOM
 Size: 20 Acres
 Funding to Date: \$630,000
 Estimated Funding to Complete: \$3,411,000



Base Mission: Tests and evaluates torpedoes and torpedo components

Contaminants: Paint, ordnance compounds, PCBs, POLs

Number of Sites:

CERCLA: 2
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 2

Relative Risk Ranking of Sites:

High: 1 Not Evaluated: 0
 Medium: 0 Not Required: 1
 Low: 0

Sites Response Complete: 1	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1							
RI / FS				1				
RD					1			
RAC								
RAO								
IRA	1(1)				1(3)			
RC	1			1				
Cumulative % RC	50%	50%	50%	100%	100%	100%	100%	100%

BARSTOW MARINE CORPS LOGISTICS BASE

BARSTOW, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CMC
 Size: 5,688 Acres
 Funding to Date: \$70,808,000
 Estimated Funding to Complete: \$70,395,000



Base Mission: Originally conducted industrial operations; currently maintains, repairs, rebuilds, stores and distributes supplies and equipment

Contaminants: Heavy metals, PCBs, POLs, pesticides/herbicides, volatile organic compounds, dichloroethane, ethylene dibromide, tetra-chloroethylene, trichloroethylene

Number of Sites:	Relative Risk Ranking of Sites:		
CERCLA:	38	High:	8
RCRA Corrective Action:	1	Medium:	1
RCRA UST:	3	Low:	2
Total Sites:	42		

NPL

Sites Response Complete: 31

EXECUTIVE SUMMARY

Marine Corps Logistics Base (MCLB) Barstow is located directly east of the City of Barstow, in the central Mojave Desert, about halfway between Los Angeles and Las Vegas. MCLB Barstow consists of three separate, distinct areas: the Nebo Main Base, the Yermo Annex, and the Rifle Range. The Nebo Annex houses most of the Base's administrative activities: Base housing, military and dependent support facilities, and covered storage for warehousing activities. The Yermo Annex is utilized mainly for industrial maintenance, repair, and rebuild activities. The Rifle Range provides a secured area where Marines can practice and improve their marksmanship skills. Typical operations that contributed to contaminated sites on the facility include: vehicle maintenance, weapons repair and maintenance, missile systems maintenance and repair, communications, electronics repair, machine shop, petroleum products and chemical storage, and an industrial wastewater treatment plant (IWTP). MCLB Barstow was listed on the National Priorities List (NPL) in November 1989 due to the detection of high levels of the organic solvent TCE in groundwater monitoring wells. MCLB Barstow signed a Federal Facility Agreement (FFA) with EPA and California regulatory agencies in October 1990.

The Nebo, Rifle Range, and Yermo areas of MCLB Barstow are all fairly well isolated from neighboring communities which are located 1/4 to 1 mile from facility boundaries. Commercial land development adjacent to the facility includes sand and gravel mining and processing. Also, the City of Barstow maintains a sewage treatment plant and effluent disposal ponds adjacent to the property. Other surrounding land is generally unused and undeveloped desert land. Results from field investigation efforts have shown the groundwater contamination at both Yermo and Nebo to be the major environmental concern.

Initial Assessment Studies and other investigations conducted between FY83 and FY90 identified thirty-eight CERCLA sites, 1 RCRA site, and three groups of underground storage tank (UST) sites at MCLB Barstow. To facilitate cleanup efforts and as a result of the Federal Facility Agreement, the

CERCLA sites were divided into seven Operable Units (OU). Site types include sludge disposal areas, plating waste disposal areas, low-level radioactive storage areas, spill sites, and evaporation ponds.

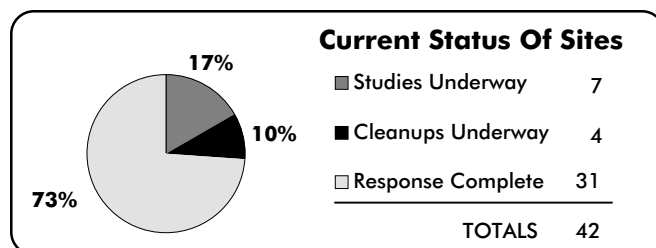
All RI/FS work for 29 CERCLA sites was completed in FY 97. The Record of Decision (ROD) for OUs 3 and 4 was signed in June, 1997. The RODs for OUs 1, 2, 5, and 6 are scheduled for signature in FY 98.

Granulated Activated Carbon Units have been installed on Base production wells to treat the TCE and PCE found in the groundwater. At Nebo, TCE contamination found in an off-base well resulted in a Removal Action to provide base water to the 3 affected families (March 1993). At Yermo, it is also clear that PCE and TCE well above Maximum Contaminant Levels (MCLs) is migrating off-base and must be remediated, and in 1996 a removal action was performed installing carbon filtration for 2 affected off-base families.

A Technical Review Committee (TRC) was established in FY91 and meets on a regular basis. A Community Relations Plan (CRP) was completed and an Information Repository established in 1991.

As the Installation Restoration Program (IRP) moves from study to cleanup, decisions affecting land use are now being made. Large portions of land will be tied up during construction of the infiltration galleries for the Yermo groundwater treatment. Landfills covering several acres of land will get capped, affecting long term use of the land. Institutional controls are being placed on some areas of land limiting their land use. Because of this, involvement by Base officials in the IRP is becoming more critical.

The success stories for 1997 is the signing of the ROD for OUs 3 and 4 and the completion of a removal action at CAOC 21. This removal action will result in a No Further Action for this site.



BARSTOW MCLB RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Groundwater is the only source of water for both domestic and industrial use in the area. Four documented historical contaminant sources have contributed to the degradation of groundwater quality in the vicinity of Barstow. They are effluent disposal from the City of Barstow's Wastewater Treatment Plant (WWTP), irrigation water from the MCLB golf course at Nebo, waste discharged from the ATandSF rail yard at Barstow, and chlorinated solvents from the Nebo Main Base. The Mojave River recharges regional groundwater. However, groundwater conditions at the Yermo Annex are significantly different from the conditions at the Nebo Main Base. At the Yermo Annex, groundwater is encountered from between 133 and 147 feet below ground surface (bgs). At the Nebo Main Base, groundwater is encountered much shallower, between approximately 10 and 75 feet bgs in the central area of the Base and up to 175 feet bgs on the alluvial fan south of Interstate 40. In the bed of the Mojave River, groundwater has been encountered at a depth of only 4 to 5 feet bgs. The groundwater table has remained relatively stable at Nebo Main Base, but has been lowered about 70 feet at the Yermo Annex since the 1930's. The lowering of the water table can be attributed to regional groundwater withdrawal due primarily to agricultural irrigation wells with minor influences coming from private and public production wells. Currently, there are two active Yermo Annex production wells which are located within the Yermo contaminant plume. Both of these wells have carbon filtration systems to remove Volatile Organic Compounds (VOCs) to non-detectable levels. This water is currently used for various domestic and industrial uses at the Yermo Annex. The remaining production wells at the Yermo Annex are currently inactive. Production wells at Nebo Main Base have been inactive since about 1975.

The dry bed of the Mojave River is the dominant surface water feature in the Mojave Desert. A surface water drainage control system was built for the Nebo Main Base soon after the base was established. Assembly of storm drains, culverts, and paved areas distribute runoff to a main drainage canal at Nebo Main Base. This canal directs the water generally south to west and ultimately northeast across the Main Base to the Mojave River. Surface water discharge is less controlled and typically less of a problem at the Yermo Annex; however, in April 1993 the Mojave River flooded over its banks, deluging the southern portion of the Annex and destroying two monitoring wells.



NATURAL RESOURCES - Due to extensive land clearing, paving, and construction, native flora and fauna have been disturbed at Nebo, the Main Base, and at the Yermo Annex. Non-native species have been planted in some areas in both Nebo and Yermo. Outside the boundaries of the Base, relatively unaltered natural habitats still exist. The Creosote Bush Scrub, Alkali Sink and Semi-dune vegetation communities surrounding the Yermo Annex and Nebo Main Base provide diverse habitats for many species of native and non-native wildlife. The principal native vertebrates in the area are rodents, reptiles, and birds. Introduced species include pocket gophers, starlings, flickers, song sparrows, meadowlarks, and ravens. One endangered species and two threatened species have been identified on or near MCLB Barstow. The Mojave Tui Chub is endangered and the Mojave Ground Squirrel and the Desert Tortoise are both threatened species.



RISK - Baseline Human Health Risk Assessments and Ecological Risk Assessments are being conducted as part of the Remedial Investigations (RIs). Eight sites were ranked as high relative risk in the Department of Defense (DOD) Relative Risk Ranking System. The high ranking was due to contaminated groundwater for five of the sites and contaminated soil for three of the sites.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - MCLB Barstow was included on the National Priorities List (NPL) on 21 November 1989 based on a Hazard Ranking System (HRS) score of 37.93. The listing was due to the detection of organic solvent in groundwater monitoring wells located at the Nebo facility.



LEGAL AGREEMENTS - A Federal Facility Agreement (FFA) between the Department of the Navy (DON), the EPA Region IX, the California Department of Health Services and the California Regional Water Quality Control Board (CRWQCB), Lahontan Region, was signed in October 1990. The agreement established schedules and regulatory review turnaround times for key project milestones.

Thirty-eight sites were divided into six Operable Units (OUs) in the FFA. OU 1 (Site 37) and OU 2 (Site 38) address groundwater contamination at the Yermo and Nebo Annexes, respectively. OU 3 (Sites 18, 20, 21, 23, and 34); OU 4 (Sites 2, 5, 9, and 11); OU 5 (Sites 15-17, 19, 22, 24-32, 35, and 36); and OU 6 (Sites 1, 3, 4, 6-8, 10, 12-14, and 33) address contaminated soil at 36 sites that were identified in previous Installation Restoration Program (IRP) investigations. OU 7 will be added to address any sites identified in the RCRA Facility Assessment (RFA). For tracking purposes the potential sites in OU 7 are referred to as "Sites 33-99", but the actual number of sites will be determined by the RFA. The RFA is scheduled for completion in FY 98.



PARTNERING - A week long team building session was held in FY93. Regulatory agencies which attended were EPA Region IX, Cal-EPA, and the CRWQCB, Lahontan Region. Since then, regular meetings and conference calls have served to foster teamwork. RPM meetings (with regulatory agencies, the base, the EFD, and CLEAN/RAC contractors) are conducted quarterly to keep the program on schedule and resolve larger issues.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A technical Review Committee (TRC) was formed in November 1990 and meets as needed. The TRC has not been converted into a Restoration Advisory Board (RAB) because there has been no public interest in its establishment. The Marine Corps base will establish a RAB if such interest surfaces. The next TRC meeting is scheduled for November 1997.



COMMUNITY RELATIONS PLAN - Community Relations Plan (CRP) was completed in 1991. Fact sheets are produced on a quarterly basis. A public meeting is held at least once a year. Turnout is usually low due to lack of public interest.



INFORMATION REPOSITORY - Current and regularly maintained Information Repository and Administrative Record were established in 1991.

BARSTOW MCLB HISTORICAL PROGRESS

FY83

Sites 1-33 - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA), completed in September 1983, identified 33 potentially contaminated sites at MCLB Barstow. Sites 1-14 are located at the Nebo Annex, Sites 15-32 are located at the Yermo Annex and Site 33 is located at the Rifle Range which is contiguous with Nebo.

FY86

Sites 2, 5, 9, 11, 18, 19, 21, 23, 34 and 35 - A Confirmation Study (CS), equivalent to a Site Inspection (SI) completed in February 1986 found pesticides and herbicides in soil and the organic solvent TCE in groundwater at Site 2; petroleum hydrocarbons and the pesticide DDT in soil at Site 11; petroleum hydrocarbons and heavy metals (arsenic, barium, beryllium, lead, and vanadium) in soil and petroleum hydrocarbons, the organic solvents dichloroethane and ethylene dibromide in groundwater at the Sludge Waste Disposal Area, Site 18; and heavy metals (arsenic, lead, and vanadium) in soil and petroleum hydrocarbons in groundwater at the Industrial Waste Disposal Area, Site 21; the chemical additive PCB in sludge at Site 34; and no evidence of heavy metals contamination in soil at Site 35. (Metal-contaminated sandblast grit had been suspected at Site 35, a Class III Landfill.) The report found no or insignificant levels of contamination at the Chemical Storage Area, Site 5; the Fuel Disposal Area, Site 9; the First Hazardous and Low Level Radiological Storage Area, Site 19; and the Landfill Area, Site 23.

FY89

Site 37 - An Action Memorandum (equivalent to an Interim Record of Decision (IROD)) was completed in July 1989 for installation of an activated carbon groundwater treatment system to remove volatile organic contaminants from the Yermo drinking water system. The system will continue operating as long as it is required to protect the Base's drinking water. The system has been effective in removing volatile organic compounds (VOCs) to below detection limits.

FY90

Sites 37 and 38 - In partial response to a Cleanup and Abatement Order issued in July 1989, a study was conducted in February 1990 to determine whether contamination from on-site operations had adversely impacted drinking water supplies in the vicinity of Yermo and Nebo Annexes. The results of the study indicated that, although trace amounts of volatile organic compounds were detected in two of 17 off-site wells, the detected concentrations did not pose a human health risk and were well below federal and state drinking water standards. The off-site wells are scheduled for continued monitoring during the Remedial Investigation (RI).

Site 38 - An SI was completed.

FY91

Site 36 - Another new site, the Proposed Vehicle Maintenance Shop, was identified in 1991. Although no SI was done at this site, petroleum products were found in the soil and the site was recommended for a Remedial Investigation/Feasibility Study (RI/FS).

RCRA Sites - A Preliminary Review/Visual Site Inspection (PR/VSI) Report was completed in August.

FY92

UST 01 - Forty-one Underground Storage Tanks (USTs) were removed in June 1992.

FY93

Sites 15 and 17 - A removal action involving the removal of industrial waste sludge was completed in FY93 at the Oil Storage/Spillage and IWTP Areas, Sites 15 and 17.

Sites 37 and 38 - An Interim Remedial Action (IRA) was completed in June 1993 at OU 2 (Site 38) that provided water to three families using water from an off-base well contaminated with the organic solvent TCE. Efforts are underway to improve the water supply at OU 2 and to provide a water supply to residents affected by OU 1 (Site 37). An alternative water supply is expected to be provided through FY20. A treatability study at Site 37 using a Pilot Extraction Well and Air-Sparging system was performed in FY93 to determine the appropriate removal required to control off-base migration of contaminated groundwater.

Site 35 - The percolation ponds continue to be aerated and a filter was installed in FY93 to remove the organic solvent tetrachloroethylene from water before discharge to the ponds. This is expected to continue until FY98, if sampling indicates tetrachloroethylene concentrations above the state action level.

FY94

Site 34 - A removal action to remove soil contaminated with the chemical additive PCB was conducted.

Site 2 - A removal action to remove contaminated soil was completed.

FY95

OU 7 - A RCRA Facility Assessment (RFA) at MCLB Barstow was initiated and is expected to be completed in December 1996. It is planned that sites identified during the RFA as needing further action will be investigated under CERCLA as OU 7 in an RI/FS.

Sites 1-38 - RI/FSs were underway.

OU 1 (Site 37) - The results of the pilot-scale study conducted during FY 93 and FY94 were used to prepare the Engineering Evaluation and Cost Analysis (EE/CA) and design a groundwater remediation system. An Extraction Well and Air-Sparging system is being implemented at OU 1 and will operate until FY20. A time critical/emergency removal action was conducted to provide carbon filtration of wells for private residents off Yermo Annex.

OU 2 (Site 38) - Two pilot-scale studies involving air sparging vapor extraction and a groundwater pump-and-treat system were constructed.

UST 2 - An Investigation (INV) was completed. UST 2 consists of approximately 70 additional tank locations that the California Regional Water Quality Control Board (CRWQCB), Lahontan Region, is requiring to be removed and tested. Ground Penetrating Radar confirmed the existence of only seven tanks which will be removed in FY96.

OU 5 and 6 - the cost was reduced for the Phase II field effort from \$12 million to \$4 million. This was accomplished by negotiating a lesser scope (which still met Data Quality Objectives (DQOs)) with the regulatory agencies.

FY96

Sites 2, 5, 9, 11 and 18 (OUs 1 and 4) - RI/FSs were completed and sites were determined Response Complete.

Site 37 (OU 1) - Yermo GW Removal Action success story. - The 10 million dollar groundwater removal action at Yermo consisting of air sparging combined with vapor extraction (for source control) as well as groundwater extraction and treatment (for containment) has been started and should finalize construction in December 1996.

UST 2 - Corrective Action Plan (CAP) was completed for the removal of seven tanks.

BARSTOW MCLB PROGRESS DURING FISCAL YEAR 1997

FY97

Sites 3, 4, 6-8, 10, 12-17, 19-22, 24-33 and 36-38 - RI/FSs completed at 29 sites.

Site 21 - Complete IRA, RD and RAC.

Sites 37 and 38 - Respectively, one and three removal actions at sites 37 and 38 (groundwater at both base annexes) completed.

Sites 1, 3, 4, 6, 8, 10, 12-17, 19, 21, 22, 24-33 and 36 - Response complete at 25 sites.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

OUs 1, 2, 5 and 6 - Completion of RODs.

Site 38 - Complete RD.

Site 37 - Complete IRA.

FY 99

Site 35 - Complete RI/FS

Sites 37 and 38 - RD at Site 37. Installation of remaining RA extraction wells at both sites while continuing on-going LTO of groundwater remediation systems.

Site 3999 - Implementation of Extended RFA Workplan (Phase II Characterization).

UST 1 - RD will be completed; corrective action will be implemented and site will be Response Complete.

UST 3 - Complete CAP and its implementation.

Site 3999 - Complete SA.

UST 2 - Complete Corrective Action Implementation.

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	11							
RI / FS	6	29		1	1			1
RD		1	1	1			2	3
RAC		1			1	1		5
RAO								2
IRA	4(4)	3(5)	1(1)	1(1)				1(1)
RC	6	25				1		6
Cumulative % RC	16%	82%	82%	82%	82%	84%	84%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA								
RFI / CMS								1
DES								1
CMI								1
CMO								
IRA								
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA				1				
CAP				1	2			
DES				1				
IMP				1	1	1		
IMO								
IRA	1(1)							
RC				1	1	1		
Cumulative % RC	0%	0%	0%	33%	67%	100%	100%	100%

BRIDGEPORT MARINE CORPS MOUNTAIN WARFARE TRAINING CENTER BRIDGEPORT, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CMC
 Size: 45,215 Acres
 Funding to Date: \$10,538,000
 Estimated Funding to Complete: \$4,371,000



Base Mission: Provides training and limited logistics support to deploying Marine Corps forces; develops, tests, and evaluates equipment for cold weather and mountain operations

Contaminants: POLs, methyl ethyl ketone, naphthalene, benzene, toluene, ethylbenzene, xylene

Number of Sites:

CERCLA: 10
 RCRA Corrective Action: 1
 RCRA UST: 7
 Total Sites: 18

Relative Risk Ranking of Sites:

High: 3 Not Evaluated: 0
 Medium: 7 Not Required: 6
 Low: 2

Sites Response Complete: 6	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI		8	2					
RI / FS		4	5	1				
RD			1					
RAC		1	5					
RAO								2
IRA	2(2)		1(1)					
RC		4	3	1				2
Cumulative % RC	0%	40%	70%	80%	80%	80%	80%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA	1							
RFI / CMS								
DES								
CMI								
CMO								
IRA								
RC	1							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	3		3	1				
CAP		1		1				1
DES							1	3
IMP							1	4
IMO								1
IRA	2(2)							1(1)
RC	1						1	5
Cumulative % RC	14%	14%	14%	14%	14%	14%	29%	100%

CAMP PENDLETON MARINE CORPS BASE

OCEANSIDE, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CMC
 Size: 125,000 Acres
 Funding to Date: \$86,095,000
 Estimated Funding to Complete: \$110,921,000



Base Mission: Provides housing, training facilities, logistical support and administrative support to Fleet Marine Force Units

Contaminants: Heavy metals, pesticides, PCBs, benzene, chlorobenzene, dichloroethane, ethylbenzene, methyl ethyl ketone, tetrachlorobenzene, trichloroethane, trichloroethylene, xylene

Number of Sites:		Relative Risk Ranking of Sites:	
CERCLA:	58	High:	21
RCRA Corrective Action:	113	Medium:	7
RCRA UST:	30	Low:	79
Total Sites:	201	Not Evaluated:	26
		Not Required:	68

NPL

Sites Response Complete: 68

EXECUTIVE SUMMARY

The Camp Pendleton Marine Corps Base (MCB) is located midway between Los Angeles and San Diego. It is bordered by the City of San Clemente to the north, the City of Oceanside to the south, and the City of Fallbrook to the east. The base has served as a training base since its establishment in 1941. Environmental contamination is associated with maintenance operations for vehicles and equipment used in carrying out its mission, and support facilities such as gas stations, hospitals, laundries, pest control areas, and hobby shops. These operations have generated hazardous wastes including waste oils, contaminated fuels and other petroleum products, cleaning solvents, and pesticide rinseate. Site types include landfills, surface impoundments, pesticide storage areas, fire training areas, vehicle maintenance areas, and underground storage tanks (USTs). Camp Pendleton was included on the National Priorities List (NPL) in November 1989 after the herbicide 2,4,5-TP (Silvex) was detected in two groundwater wells used to supply water. Silvex has never been detected since nor any other contaminant in the supply water wells. A Federal Facilities Agreement (FFA) was signed with EPA and California regulatory agencies in October 1990.

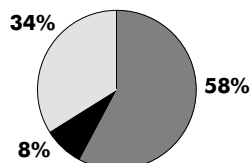
Adjacent lands are residential, rural, and agricultural. A majority of the surrounding land is undeveloped. The Pacific Ocean is due west of the base. Hydrogeology at MCB Camp Pendleton is conducive to contaminant migration. Base personnel obtain drinking water from wells located on the base. The nearest well is within 1,320 feet of one of the disposal areas. Precipitation runs off to several nearby creeks and rivers. These creeks and rivers are used for recreational activities and some empty into coastal wetlands. There are also a number of endangered, threatened, or rare species on the base. The MCB is located on a site which has significant archaeological and historical value. Three sites located on the base are included in the National Register of Historic Places. One of these sites has also been designated a National Historical Landmark.

A total of 201 sites were found at the MCB: 113 RCRA sites, 30 UST Sites, and 58 CERCLA sites. Two Record of Decisions (RODs) have been signed. Operable Unit (OU) One ROD was signed in FY96 and documented no further action required at 4 sites. Operable Unit Two ROD was signed in FY97 and documented no further action required at 14 sites (11 sites due to extremely low risk levels and three sites due to cleanup actions). The OU2 ROD is the culmination of more than five years of study and cleanup work with an estimated value of \$25 million dollars and a total of 71,000 tons of soil removed.

RI/FSs will be completed at 51 CERCLA sites in FY98. Two RODs will be signed in FY98 and FY99, respectively. Potential RDs and RAs for 13 sites will be conducted during FY98 and FY99, respectively. Site Assessments will be conducted at 22 tank sites. Design and implementation of remediation systems will be completed at 42 tank sites.

The base has an active Technical Review Committee (TRC). A Community Relations Plan (CRP) and Information Repositories were established in FY92.

Current Status Of Sites



■ Studies Underway 116
 ■ Cleanups Underway 17
 □ Response Complete 68
TOTALS 201

CAMP PENDLETON MCB RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Groundwater is shallow, averaging 7-14 feet deep, and soils are permeable: Conditions that facilitate movement of contaminants into groundwater. The base is wholly dependent on groundwater to meet all on-base water demands, including the potable supply. The nearest well is within 1,320 feet of one of the disposal areas. Surface runoff drains to several creeks and rivers which eventually discharge to the Pacific Ocean. The San Margarita River, Las Flores Creek, and San Mateo Creek empty into coastal wetlands within two miles of Camp Pendleton. Surface waters within three miles downstream are used for recreational activities.



NATURAL RESOURCES - Within base boundaries are two natural wetland habitats which are protected by state and county agencies. These two critical habitats, vernal pools and coastal marshes, once common in Southern California, have decreased due to extensive development.

A number of species (plants, reptiles, birds, and mammals) observed on base have been listed as endangered, threatened, or rare. Most of the rare, threatened, and endangered species found on the base are located within marshlands situated at the mouths of the Santa Margarita River, Las Flores Creek, and San Mateo Creek. In addition, the coastal beaches are also suited for these species. The Santa Margarita River is a major nesting habitat for two endangered avian species, the California Least Tern which nests in the marshland and the Least Bell's Vireo which nests in the willow thickets adjacent to the Chappo Area.



RISK - The DOD Relative Risk Ranking was applied to 135 sites at MCB. Twenty-one sites were ranked as high relative risk. These sites were ranked as high primarily due to known soil and groundwater contamination.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - In 1980, two water supply wells near Site 3 were found contaminated with the Herbicide 2,4,5-TP (SILVEX). MCB Camp Pendleton obtains its entire domestic and agricultural water supply from groundwater basins within its boundaries and this potential for groundwater contamination was the primary reason for placement on the NPL. MCB Camp Pendleton was included on the NPL on 21 November 1989 based on a Hazard Ranking System score of 33.79. Subsequent sampling of the supply wells has not detected any further contamination.



LEGAL AGREEMENTS - A Federal Facility Agreement (FFA) was signed by the Department of the Navy, EPA Region IX, the California Department of Toxic Substances Control, and the California Regional Water Quality Control Board, San Diego Region, in October 1990. The agreement established lead and support agency roles, work schedules, and regulatory review turnaround times for key project milestones.



PARTNERING - The installation has continued to develop partnering relationships with state and federal regulatory agencies. This relationship has resulted in significant dividends. For example, field changes to the RAs at Sites 3 and 6 were made in order to successfully remove the contamination at the sites while protecting habitat. The regulators agreed to the conceptual removal approaches the installation proposed without extensive documentation review. In addition, the team expedited the review of the Site 3 and 6 Closure Reports and the review of the OU2 ROD. This enabled the OU2 ROD to be signed prior to the end of the fiscal year.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Restoration Advisory Board (RAB) has not been established yet for this base. Marine Corps base will establish a RAB if the public indicates an interest in establishing one. A Technical Review Committee (TRC) was formed in November 1991. The base has a semi-active TRC attended by a few personnel from the base communities.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in February 1992. Several Fact Sheets have been released and distributed. A public meeting for the OU2 Proposed Plan was held in FY97. No members from the public attended.



INFORMATION REPOSITORY - An Information Repository and an Administrative Record were established in November 1991. The information from the Administrative Record is contained in the Information Repository.

HISTORICAL PROGRESS

FY84

Sites 1-8 - An Initial Assessment Study (IAS), equivalent to a PA, identified eight potentially contaminated sites. Site 1 consists of nine refuse burning grounds (Sites 1000-1008) and Site 2 consists of six mess hall grease disposal pits (Sites 2000-2005) scattered throughout the base.

FY88

Sites 3-5, 8 and 9 - A Site Inspection (SI) was completed in FY88. Site 9 was added during the SI at the request of the Department of the Navy to meet the requirements of the California Toxic Pits Control Act.

FY90

Site 4 - In response to a California Regional Water Quality Control Board, San Diego Region letter dated August 14, 1989, sampling and analysis were conducted in July 1990 at a concrete-lined surface impoundment in the vicinity of the MCAS Drainage Ditch. Results indicated the presence of

petroleum hydrocarbons in sludge and acetone in liquid. Site 4 was expanded to include the concrete-lined surface impoundment.

Sites 19 and 21 - On March 23, 1990 and on June 19, 1990 the California Regional Water Quality Control Board, San Diego Region, listed the 31 Area LCAC-5 Two Surface Impoundments (Site 19) and the 14 Area Unlined Surface Impoundment (Site 21), respectively, as toxic pits and required the Department of the Navy to "cease discharge" and to prepare Work Plans for removal of liquid and sludge in compliance with the Toxic Pits Control Act. The Work Plans were submitted in August 1990 for regulatory agency review and approval.

FY91

Sites 8 and 20-26 - Additional investigation during FFA negotiations, involving review of existing reports and interviews with base personnel, identified seven additional CERCLA sites (Sites 20-26) and expanded Site 8 to include Las Flores Creek.

CAMP PENDLETON MCB HISTORICAL PROGRESS

FY93

Sites 49-157 - A RCRA Facility Investigation (RFI) was completed in June 1993 for 109 sites (Sites 49-157). Twenty-eight sites were later deleted from the program due to lack of contamination.

FY94

Site 5 - A Remedial Design (RD) was completed.

FY95

Sites 3-6, 9 and 24 - An RI/FS was completed.
 Sites 7, 8, 10, 14, 16-20, 22, 27-48, 1000-1008 and 2000-2005 - RI/FSs were ongoing.
 Sites 3 and 6 - Remedial Design (RD) was completed at the pest control washrack and the scrap yard.
 Sites 1-61 - RI/FSs were completed at Group A sites and are ongoing at Groups B, C, and D sites.
 Sites 4, 4A, 9, and 24 - The draft OU1 Interim Record of Decision (ROD) was completed.
 Sites 19 and 21 - A Removal Action was completed at the two surface impoundment sites to remove liquids, sludge, and liners.
 Sites 3 and 6 - Removal Action planned at the pest control wash area and the scrap yard site were not initiated due to funding problems, a change in treatment standards, and selection of another technology after completion of the treatability study.
 UST 01 - Interim Remedial Actions consisting of soil removal and bioremediation were initiated. Vapor extraction was initiated at nine other UST sites.

FY96

Sites 23, 25 and 26 - Completed PA/SI
 Sites 4, 4A, 9 and 24 - Completed Final ROD. The first ROD was signed by the FFA parties. This is a no-action ROD.
 Sites 3, 6, and 7 - An Engineering Evaluation/Cost Analysis (EE/CAs) and Action Memorandums were completed.
 Site 7 - Completed RD
 Sites 3 and 6 - Begin Interim Removal Actions
 Sites 8, 14 and 43-48 (OU2) - Completed FS.
 Site 5 - Remedial Action to remove contaminated soil was completed at the fire training areas.
 Sites 11-13 and 15 - Completed RFAs
 Sites 5, 11-15, 23, 25, 26 and 44-48 - Designated RC

PROGRESS DURING FISCAL YEAR 1997

FY97

Sites 30, 35, 1003 and 1004 - Sites reevaluated and included in OU3 RI/FS
 Sites 3, 7, 9, 10, 16, 17, 19, 20, 22, 27, 28, 31, 32, 35, 36, 1000-1008 and 2000-2005 - Completed RI/FSs
 Sites 3, 5, 6, 8, 14, 19, 20, 22, 27, 28, 31, 43-45 and 2001 - Final OU2 ROD completed.
 Site 7 - Started Removal Action.

Site 13 - Complete RFA.
 Sites 32 and 36 - Completed RAs.
 Sites 3, 9, 16, 17, 19, 20, 27, 28, 31, 32, 35, 36, 1001, 1002, 1006-1008, 2001, 2004 and 2005 - RC sites.
 UST 13 - Completed IRA at 18 tank sites
 UST 22 - Corrective action plan in progress for 20 tank sites
 UST 43 - Completed Site Assessment for 15 tank sites

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Sites 3, 10, 18, 33, 34 and 37-42 - Complete OU3 RI/FS
 Sites 7, 10-13, 15-18, 21, 23, 25-30, 32-42, 46-157, 1000-1008, 2000 and 2002-2005 - Complete OU3 Record of Decision
 Site 8 - Complete RD.
 Sites 29, 30, 1003 and 1004 - Complete OU3 IRA
 OU4 - Complete ROD.
 Sites 18, 34 and 37-42 - Complete RAs
 Sites 3-5 and 16 - Complete IRAs.
 Sites 8, 18, 30, 34 and 37-42 - RC sites.
 USTs 52 and 61 - Complete Site Assessment.
 UST 22 - Complete corrective action plan for 20 sites
 UST 43 - Continue Site Assessment for 22 tank sites, design, and implement remediation systems for 12 tank sites
 UST 13 - Design and implement remediation systems for 10 sites
 UST 22 - Design and implement remediation systems for 20 sites

FY99

Sites 6, 1003 and 2000 - Complete RDs.
 Sites 7 and 2000 - Complete RAs.
 Sites 6, 17, 27, 35 and 1003 - Complete IRA.
 Sites 7, 29 and 2000 - RC sites.
 OU4 - sign ROD.
 Site 36 - Complete RI/FS
 UST 22 - Complete SA, CAP, DES, IMP and start LTM.
 USTs 24, 52 and 100 - Complete DES.
 UST 13 - Complete CAP.
 UST 62 - Apply for closure of Approx. 30 sites
 UST 43 - Start LTM for 43 Area Gas Station
 UST 21 - Apply for closure of 6 UST sites
 UST 14 - Commence remediation (Pilot Study), and Prepare CAP.
 USTs 103 and 104 - Complete RFA; RC site 103. Delist Camp Pendleton from NPL.

CAMP PENDLETON MCB PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	25							
RI / FS	10	30	11	1	1	1		
RD	2		1	3	2		1	5
RAC	1	2	8	2	5			6
RAO								1
IRA	7(9)		8(8)	5(5)	4(4)	1(1)	1(1)	6(6)
RC	13	20	10	3	4	1		7
Cumulative % RC	22%	57%	74%	79%	86%	88%	88%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA	36	1		2				74
RFI / CMS								
DES								1
CMI				1				75
CMO								
IRA				2(2)				4(4)
RC	35			3				75
Cumulative % RC	31%	31%	31%	34%	34%	34%	34%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	2	1	2	1		1		22
CAP	1		1	2			1	18
DES				4	2		3	18
IMP	1				2	2	1	24
IMO					1	1	3	18
IRA		1(1)			3(6)	5(6)	10(11)	23(38)
RC					1	1	3	25
Cumulative % RC	0%	0%	0%	0%	3%	7%	17%	100%

CENTERVILLE BEACH NAVAL FACILITY

CENTERVILLE BEACH, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVFACENGCOM
 Size: 25 Acres
 Funding to Date: \$1,262,000
 Estimated Funding to Complete: \$10,184,000



Base Mission: Commissioned in 1958 for oceanographic research

Contaminants: Solvents, POLs, heavy metals, PCBs

Number of Sites:

CERCLA: 7
 RCRA Corrective Action: 0
 RCRA UST: 3
 Total Sites: 10

Relative Risk Ranking of Sites:

High: 2 Not Evaluated: 0
 Medium: 2 Not Required: 0
 Low: 6

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	6	1						
RI / FS					1	1	2	3
RD					1	1		4
RAC							2	4
RAO								
IRA		2(2)		1(1)				
RC							3	4
Cumulative % RC	0%	0%	0%	0%	0%	0%	43%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								
CAP	3							
DES		2						
IMP			1	1	1			
IMO			1	1	1			
IRA	1(1)							
RC			1	1	1			
Cumulative % RC	0%	0%	33%	67%	100%	100%	100%	100%

CHINA LAKE NAVAL AIR WEAPONS STATION

CHINA LAKE, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVAIRSYSCOM
 Size: 608,190 Acres
 Funding to Date: \$47,236,000
 Estimated Funding to Complete: \$89,790,000



Base Mission: Navy research, development test and evaluation center for air warfare systems and missile weapon systems; national range facility for parachute test and evaluation

Contaminants: Acid, asbestos, heavy metals, POLs, paint, PCBs, industrial sludge and wastewater, pesticides, plating waste, unexploded ordnance, solvents, explosive chemicals

Number of Sites:

CERCLA: 79
 RCRA Corrective Action: 0
 RCRA UST: 9
 Total Sites: 88

Relative Risk Ranking of Sites:

High: 17 Not Evaluated: 4
 Medium: 6 Not Required: 57
 Low: 4

Sites Response Complete: 55	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	74	4	1					
RI / FS	1		1	4	8	4	3	6
RD				2	5	5	1	5
RAC						7	3	5
RAO								1
IRA		9(9)	2(2)	4(4)	3(3)		1(1)	2(2)
RC	48	4	2	2	1	9	6	7
Cumulative % RC	61%	66%	68%	71%	72%	84%	91%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA			1					
CAP	6	1		1				
DES	1		1					
IMP	1	2	1	2				
IMO		2		3			1	
IRA	1(1)							
RC	1	2	1	4			1	
Cumulative % RC	11%	33%	44%	89%	89%	89%	100%	100%

CHOCOLATE MOUNTAIN AERIAL GUNNERY RANGE

NILAND, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CMC
 Size: 460,000 Acres
 Funding to Date: \$126,000
 Estimated Funding to Complete: \$5,207,000



Base Mission: Provides MCAS Yuma with a large and diversified assortment of ground targets for live-fire aerial gunnery, air-to-ground bombing and strafing training by Marine Corps and Navy pilots. The SEAL Camp is used for desert training and readiness operations

Contaminants: Paint, POLs, solvents, acid, ash

Number of Sites:

CERCLA: 7
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 7

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 2
 Medium: 2 Not Required: 0
 Low: 3

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI						1		6
RI / FS								2
RD								1
RAC								
RAO								
IRA	1(2)		1(1)			1(2)		4(5)
RC						1		6
Cumulative % RC	0%	0%	0%	0%	0%	14%	14%	100%

CONCORD NAVAL WEAPONS STATION

CONCORD, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVSEASYSOM
 Size: 13,023 Acres
 Funding to Date: \$41,927,000
 Estimated Funding to Complete: \$34,957,000



Base Mission: Ships, receives, inspects, and classifies munitions (tidal area); serves as munitions storage and weapons maintenance, inspection and testing facility (inland area)

Contaminants: Heavy metals, POLs, volatile and semi-volatile organic compounds

Number of Sites:	Relative Risk Ranking of Sites:		
CERCLA:	34	High:	4
RCRA Corrective Action:	16	Medium:	3
RCRA UST:	3	Low:	9
Total Sites:	53	Not Evaluated:	1
		Not Required:	36

NPL

Sites Response Complete: 36

EXECUTIVE SUMMARY

Concord Naval Weapons Station (NWS) is about 35 miles northeast of San Francisco, California. It is surrounded by the city of Concord to the west and south (population 116,000); the city of Bay Point to the east (population 17,000); and the small town of Clyde (population 600) to the north. It is the major Naval munitions facility on the west coast and, as an ocean terminal facility, is used to transfer ordnance from trucks and rail cars to ships and vice versa. The base operations include shipping, receiving, inspecting, storing, and maintaining munitions. Past operational practices such as improper disposal of paints and solvents, spent ordnance, treated wood, household and industrial waste; the open burning of various munitions; and spills or leaks from fuel storage tanks have contributed to sources of contamination.

The environmental investigations at Concord are divided into three geographical areas; Inland, Tidal, and Litigation. The Litigation Area, located in a tidal area, was purchased by the Navy in the 1970's to provide a buffer zone around the munitions handling operations. The Litigation Area is so named because of the legal actions conducted by the Navy in the late 1980's to recover Remedial Action (RA) cleanup costs from the adjacent and former property owners. Five (5) sites in the Tidal and Litigation Areas were ranked as high relative risk primarily because of heavy metals contamination.

The Tidal and Litigation Areas include wetlands that provide habitat for several endangered and threatened species, including the Salt Marsh Harvest Mouse and the California Clapper Rail. The sites in these areas are subject to tidal inundation, have no containment measures, and have a direct interconnection to Suisun Bay. Suisun Bay lies immediately to the north of NWS and is commonly used for water sports and fishing.

Concord NWS was placed on the National Priorities List (NPL) primarily because of sediment and surface water pathway conditions at the Tidal and Litigation Areas. As a result of its recent listing on the NPL, negotiations on a Federal Facility Agreement (FFA) may begin with EPA once proposed changes in regulatory responsibilities associated with Superfund are resolved. In the meantime, Concord NWS is under a Federal Facility Site Remediation

Agreement (FFSRA) with the State of California, which was signed in 1992, and which contains newly negotiated (1995) sites and schedules. A Site Management Plan is currently being prepared to complement the FFSRA.

A Restoration Advisory Board (RAB) was formed in July 1995 and has 10 active members. Community members have shown a high level of interest in the Installation Restoration Program (IRP), and are providing valuable insight and comments on the IRP documents under preparation. Two committees are currently active. They include the public relations committee and the documents review committee.

Nine sites in the Inland and Tidal Areas are in the Remedial Investigation/ Feasibility Study stage (RI/FS). Twenty one sites and 20 solid waste management units (SWMUs) are Response Complete (RC). Seven Litigation Area sites recently underwent a Remedial Action - four in 1994 and three in 1996. These seven sites are undergoing post-remediation Long Term Monitoring (LTM). The fourth LTM event of the Litigation Area sites will begin in the spring of FY98.

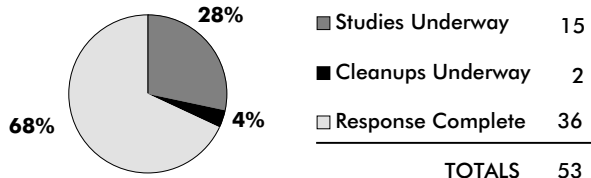
The Navy completed Site Inspections (SIs) at 24 SWMUs in FY97, and documented the results in a RCRA Facility Confirmation Report. Three of the SWMUs underwent a corrective action interim measure removal. A total of 20 SWMUs will require No Further Action (NFA) and are now Response Complete (RC). Four SWMUs will proceed with further investigation under a supplemental SI.

At four Tidal Area Sites, the final RI Report, including the human health and qualitative ecological risk assessment, is expected to be completed in FY98, and the sites will proceed to the feasibility study (FS) phase. A removal action will begin at one of the sites.

For the five Inland Area Sites, the RI report is expected to be completed in FY98 and a FS will begin for one of the sites. A no-action Proposed Plan (PP) and Record of Decision (ROD) will begin for two of the sites, a corrective action removal will be completed at one site, and an EE/CA will be initiated for one of the sites.

In FY94 and FY95, risks to human health and the environment were reduced as a result of a RA for the Litigation Area Sites. Cleanup consisted of excavating and disposing of 43,500 cubic yards of soil contaminated with heavy metals that exceeded hazardous waste levels. The sites were then graded and revegetated. The Department of Navy (DON) prosecuted claims to recover the costs of cleanup from 14 defendants and to require the owners of six contaminated properties adjacent to the installation to cleanup their properties concurrent with the DON's cleanup. A LTM plan for soil, water, and biota is in effect to evaluate the success of the remedial action and restoration.

Current Status Of Sites



CONCORD NWS RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Concord NWS is bound on the north by Suisun Bay and on the south and west by the city of Concord. Soil and sediment are contaminated with metals and volatile organic compounds. Surface water and sediment is the pathway of greatest concern due to the direct interconnection of the Tidal and Litigation Areas to Suisun Bay and the lack of containment measures. The surface water runoff from Concord NWS is primarily to the north from the Inland and Tidal Areas, through the wetlands, into Suisun Bay.

Groundwater at Concord NWS is not used for drinking water due to its high Total Dissolved Solids (TDS) content. However, potable water wells available for use in drought years are located downgradient of the Inland Area Sites and could be affected by groundwater contamination. The groundwater pathway is currently being evaluated as part of the RI for the Tidal and Inland Area Sites.



NATURAL RESOURCES - Suisun Bay is a transition zone between saltwater and freshwater ecosystems and is interconnected to the Concord NWS wetland areas. This area contains a diverse population of fish and other aquatic wildlife. The Bay is also used for recreation. The upland and wetland areas at Concord NWS provide habitat for numerous flora and fauna and federal and state designated threatened and endangered species. These include the Salt Marsh Harvest Mouse, California Clapper Rail, California Black Rail, Tule Elk and the figwort family of plants including the Delta Tule Pea and Soft Bird's Beak.



RISK - A baseline human health risk assessment and an ecological risk assessment are currently being prepared for the Tidal and Inland Areas as part of the RI. At the Litigation Area, a qualitative ecological assessment was completed in FY97 in response to the concerns of the regulatory agencies that the RA cleanup levels specified in the 1989 ROD do not adequately protect flora and fauna. The Litigation Area ecological assessment was conducted in coordination with the ongoing LTM program that was specified in the ROD for the Litigation Areas. Risk management meetings are held periodically with the regulators and trustees to discuss whether any risk management actions become necessary.

Four sites are ranked as high relative risk in the DOD Relative Risk Site Evaluation System at Concord NWS primarily because of threatened and endangered species in the sensitive wetland areas and recreational users in adjoining Suisun Bay. The close proximity of NWS to the Contra Costa County Water Wells surrounding Mallard Reservoir has also contributed to the high relative risk ranking. Risks to human health and the environment have been reduced due to a remedial action for the Litigation Area Sites. This action removed 43,500 cubic yards of metals-contaminated soil which exceeded hazardous waste levels. At the Inland and Tidal areas, the Navy is planning removal or RCRA Corrective Actions to bring contaminants to safe levels which will reduce immediate threats to human health and the environment and allow several sites to be closed out, rather than requiring the sites to undergo additional investigations.



RESTORATION PROJECTS - The RA for the Litigation Area Sites consisted of excavating contaminated soils, backfilling with clean wetland soils and restoring the excavated areas. The restoration activities were designed to enhance the wetland habitat for the two endangered species of concern, the Salt Marsh Harvest Mouse and the California Clapper Rail. During the RA, elevations were lowered in several areas to enhance the wetland area. In addition, "refugial mounds" were constructed to provide refuge for the Salt Marsh Harvest Mouse during periods of high tide. The excavated areas were revegetated with native species of wetland plants harvested from local areas as well as nursery-grown stock. A LTM plan is in effect to measure the success of the restoration.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - Concord NWS was placed on the NPL on December 16, 1994, primarily because of conditions at the Tidal and Litigation Area Sites. The Hazard Ranking System (HRS) Score of 50.00 was driven by the surface water pathway, since these sites are subject to tidal inundation and have no containment measures such as runoff management structures. The Tidal and Litigation Areas have a direct interconnection to Suisun Bay.



LEGAL AGREEMENTS - A Federal Facilities Site Remediation Agreement (FFSRA) was signed by the DON, the California Department of Toxic Substances Control and the California Regional Water Quality Control Board, San Francisco Bay Region, on September 29, 1992. The agreement established a schedule for investigation and remediation for the Tidal Area and Inland Area Sites. The Litigation Area Sites were excluded from the agreement because the sites had already proceeded to cleanup.

Negotiations with EPA Region IX and the State of California for an FFA may begin in FY98 once proposed changes in regulatory responsibilities associated with Superfund are resolved. In the meantime, a Site Management Plan is being prepared to complement the FFSRA.

In FY91, the DON prosecuted claims to recover the costs of cleanup for the Litigation Area Sites from 14 defendants and to require that the owners of six contaminated properties adjacent to the sites to clean up their properties concurrent with the DON's cleanup. The DON entered into seven Consent Decrees with the adjacent property owners and recovered costs for cleanup.



PARTNERING - A partnering meeting in FY93 between the Navy and contractors helped the RA project team set goals for the RA at the Litigation Area Sites. The environmental work at Concord has required close coordination with federal and state regulatory agencies to ensure protection of endangered and threatened species. The result has been the generation of analytical data by the EPA that will be used to augment the Navy's RI sampling and analysis results. The EPA has performed chemical and biological analyses on samples collected in the Tidal Area to determine appropriate reference levels for metals. The EPA is also performing chemical and biological analyses on samples collected along the boundary of the Tidal Area Landfill to evaluate whether landfill leachate is migrating off-site. The EPA is analyzing split ecological samples using standard Contract Laboratory Program (CLP) procedures, where the Navy analyzed samples using Low Detection Limit (LDL) analytical methods. Also, the project team has worked together to revise the investigative approach for the landfill site to include a presumptive remedy, which will reduce the costs for the RI/FSs.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) held one meeting in 1990 and a draft charter was prepared. No other meetings were held, but copies of environmental reports were sent to TRC members to review. The TRC was converted to a Restoration Advisory Board (RAB) in FY95. A public notice was issued inviting members of the communities to participate in the RAB. In April and May 1995 the Navy conducted site tours for 150 community members. The tour was followed by a question and answer session led by the Navy and regulatory agencies. The first RAB meeting was held on July 20, 1995. The Navy and regulatory agencies have given technical presentations during the monthly RAB meetings. Community RAB members are reviewing draft RI Reports and providing input and comments. There are currently 10 active RAB members.

CONCORD NWS RELEVANT ISSUES



COMMUNITY RELATIONS PLAN - A CRP was completed in May 1989. An updated CRP was completed in July 1995, and a final updated CRP was issued in February 1996.



INFORMATION REPOSITORY - An Information Repository was established at the Central Contra Costa Public Library. An Administrative Record was established in 1985 and is maintained at the Naval Facilities Engineering Command, Engineering Field Activity, West in San Bruno, California. A copy of the Administrative Record documents is contained in the Information Repository.

HISTORICAL PROGRESS

FY83

An Initial Assessment Study (IAS) identified 28 potentially contaminated sites at Concord NWS. Fifteen sites were recommended for no further study. Thirteen sites were recommended for further investigation.

FY85

Sites 3, 4, 25 and 26 - A Confirmation Study (CS) addressed these sites and recommended further investigation.

Sites 5, 6, 13 and 16 - A CS addressed these sites. No further action was recommended.

FY86

Sites 3-6, 25 and 26 (Litigation Area Sites) - A final Remedial Investigation/ Feasibility Study (RI/FS) was completed. Ten Remedial Actions (RAs) alternatives were identified.

Site 14 - An investigation was completed and slightly elevated levels of arsenic, chromium and lead were found in groundwater. However, it was later determined the elevated levels were naturally occurring and not from a source of contamination.

FY87

Site 27 - Petroleum products and solvents were reportedly disposed on the ground surface. The site was identified after the completion of the IAS and was added to a subsequent Site Inspection (SI).

Site 28 - A source of heavy metals was found during litigation proceedings with Potentially Responsible Parties (PRPs) involving other sites and this site was added to an ongoing Remedial Investigation (RI).

FY88

Sites 3-6, 25, 26 and 28 (Litigation Area Sites) - A revised final RI was completed and found elevated concentrations of arsenic, cadmium, copper, lead, selenium and zinc in soil. A second revised Feasibility Study (FS) was completed.

Sites 3, 26 and 28 - Clam bioassay test results indicated a potential for cadmium, lead and zinc to move into surface waters at these sites. Plant and earthworm bioassays indicated movement of arsenic, cadmium, copper, lead, selenium and zinc into plants and soil-dwelling organisms that have potential toxicological impacts and potential contamination of species higher on the food chain, such as birds and mammals, with heavy metals. The soil of the Tidal Area is generally underlain with clay silts of low permeability that impede contaminant movement downward. Groundwater contamination was considered unlikely, but groundwater studies were included in the RI/FS.

FY89

Sites 3-6, 25, 26 and 28 - An RA plan was completed and identified several alternatives for each site. A Record of Decision (ROD) signed in April 1989, specified the excavation of contaminated soil from the area in each site designated for active remediation, disposal of contaminated soil in an existing Class I landfill, restoration of the excavated area and operation and maintenance, including monitoring. In addition to these actions, liming was specified for low pH soil at Site 6.

FY91

Sites 3-6, 25, 26 and 28 (Litigation Area Sites) - The DON prosecuted claims to recover the costs of cleanup for these sites from 14 defendants and to require the owners of six contaminated properties adjacent to the sites to clean up their properties concurrent with the DON's cleanup.

FY92

Sites 3-6, 25, 26 and 28 - A Remedial Design (RD) was completed for these sites.

SWMUs - Forty-nine Solid Waste Management Units (SWMUs) were identified in the RCRA Facility Assessment (RFA) prepared by California EPA as part of the RCRA Part B permit. Twenty four SWMUs were proposed for RCRA Corrective Action.

UST 1 - There were three tanks which were removed using Concord NWS funding.

FY93

Sites 8, 14, 19, 23A, 23B and 24B - An SI found no evidence of previously reported contaminants: No munitions-filled railcars reported to have been buried at Site 8. No volatile or semi-volatile organic compounds or petroleum hydrocarbons were found in the groundwater samples from Site 14. No evidence of culverts, outfalls, or contamination sources along the suspected 2,000 ft length of Site 19. No indication of explosive activities or explosive chemicals in the soil at Explosive Ordnance Disposal (EOD) Sites 23A and 23B. No evidence of firing range activities or elevated metals soil concentrations at Site 24B.

Sites 13, 17, 22, 24A and 27 - An SI recommended further investigation of soil and groundwater at Site 13, groundwater at Site 17 and soil at Sites 22, 27 and 24A.

Site 13 - The SI recommended removal of Napalm thickener.

Sites 1, 2, 9 and 11 - An SI addressed these sites and found volatile and semi-volatile organic compounds and metals in soil and groundwater and xylene, arsenic and mercury in sediment. Further investigation recommended.

UST 1 - An Initial Site Characterization (ISC) to define the extent of gasoline contamination in soil was completed.

FY94

Sites 6, 25, 26 and 28 (Litigation Area Sites) - An RA was completed at four (of seven) Litigation Area Sites and consisted of excavating and disposing of 22,700 cubic yards of soil contaminated with arsenic, cadmium, lead, selenium, copper and zinc and then grading and revegetating the sites. LTM is in effect to evaluate the success of the cleanup. Initiated RFA confirmation sampling at 24 SWMUs.

FY95

Sites 3-5 (Litigation Area Sites) - An RA was 95% completed for these three Litigation Area Sites. Cleanup consisted of excavating and disposing of 20,800 cubic yards of soil contaminated with arsenic, cadmium, lead, selenium, copper and zinc and then grading and revegetating the sites. Some regrading and planting remains, to complete the RA. LTM began and is scheduled to continue for a minimum of 30 years, as required by the ROD to confirm that site contaminant levels continue to be below concentrations which require further remediation.

CONCORD NWS HISTORICAL PROGRESS

Site 14 - The three abandoned wells comprising this site were properly closed and sealed to prevent them from serving as future contaminant pathways to the aquifers below. The Well Closure Report was completed.

FY96

Sites 1, 2, 9, and 11 (Tidal Area Sites) - Interim Draft RI Report (Phase 1) was completed, including the draft qualitative ecological assessment and human health risk assessment.

Sites 13, 17, 22, 24A, and 27 (Inland Area Sites) - Interim Draft RI Report (Phase 1) was completed.

Sites 3-5 (Litigation Area Sites) - The RA was completed.

Sites 3-6, 25, 26, and 28 (Litigation Area Sites) - The first-year LTM Report for these recently remediated sites was completed, and the second-year LTM event began.

Site 16 - Supplemental SI completed.

SWMUs 13, 16, and 40 - Corrective Actions (CA) were initiated for these three SWMUs.

Continued RFA confirmation sampling at 24 SWMUs.

Issued final Community Relations Plan.

PROGRESS DURING FISCAL YEAR 1997

FY97

Sites 1, 2, 9, and 11 (Tidal Area Sites) - Continued the RI Report. The Feasibility Study (FS) began for Site 1.

Site 11 - Continued field sampling, Engineering Evaluation/Cost Analysis (EE/CA), and Action Memorandum (AM), to support planned removal action.

Sites 13, 17, 22, 24A, and 27 (Inland Area Sites) - Continued the RI report.

Site 22 - The Phase 2 RI began.

Site 13 - A Risk Based Corrective Action (RBCA) removal began.

Sites 3-6, 25, 26, and 28 (Litigation Area Sites) - A Qualitative Ecological Risk Assessment (QEA) was completed. The QEA will be used to determine if the remedial action has removed significant risks to ecological receptors.

Results of the QEA will be used to further refine the LTM program and to evaluate the monitoring data. The second-year LTM Report was completed, and the third-year LTM event began.

SWMUs - An RFA Confirmation Report to confirm the presence of contamination at 15 SWMUs was completed in response to the state issued RFA. All 15 SWMUs were found to require No Further Action under the RCRA Corrective Action program and are considered RC. SWMUs 3, 5, 7, 18 and a newly identified Site 29, were recommended for further investigation under a CERCLA SI.

SWMUs 13, 16, 23 and 40 - Corrective action interim measure removals completed.

Site 241 - RI/FS completed, site RC.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Sites 13, 17, 22, 24A, 27, 1, 2, 9, 11 - The RI Report is expected to be completed.

Site 13 - The risk based corrective action removal is expected to be completed.

Sites 13, 17 - The no action Proposed Plan (PP) and ROD will begin.

Site 27 - The EE/CA and AM will begin, is expected to be completed, and removal action will begin.

Site 22 - The Phase 2 RI Report is expected to be completed, and the FS will begin.

Site 1 - The FS is expected to be completed, and the PP/ROD will begin.

Sites 2, 9, 11 - The FS will begin.

Site 11 - The EE/CA and AM is expected to be completed, and removal action will begin at the Taylor Blvd area of Site 11.

SWMUs 2, 5, 7, 18, and Site 29 - A supplemental site inspection (SI) will begin.

Sites 3-6, 25, 26 and 28 (Litigation Area Sites) - The third-year LTM Report is expected to be completed, and the fourth-year LTM event will begin.

Sites 2 and 3 - Complete IRA

USTs 1 and 2 - Complete RD

FY99

Sites 13, 17 - The no action PP/ROD is expected to be completed.

Site 27 - The removal action is expected to be completed, and a no action PP/ROD will begin.

Site 22 - The FS is expedited to be completed, and the PP/ROD will begin.

Site 1 - The PP/ROD is expected to be completed, and remedial design (RD) will begin.

Sites 2, 9, and 11 - The FS is expected to be completed, and the PP/ROD will begin.

Site 11 - The EE/CA and AM will begin for a removal at the woodhogger area of Site 11.

Site 11 - The removal action is expected to be completed at the Taylor Blvd. area of Site 11.

SWMUs 2, 5, 7, 18, and Site 29 - Continue the SI. Workplans expected to be completed and fieldwork will begin.

Sites 3-6, 25, 26, and 28 (Litigation Area Sites) - The fourth-year LTM report is expected to be completed and the fifth-year LTM event will begin.

Site 6 - An EE/CA will begin to support a planned removal action.

Site 13 - Complete PA/SI.

UST 3 - Complete Corrective Action Plan.

UST 2 - Complete a CAP Implementation and RC the site.

CONCORD NWS PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	28			1		5		
RI / FS	6	1		3	3	2		5
RD	6				3	3	2	5
RAC	6						3	10
RAO								6
IRA	1(1)		3(3)	2(2)		1(1)		
RC	20	1					2	11
Cumulative % RC	59%	62%	62%	62%	62%	62%	68%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA	1	15						
RFI / CMS					1			
DES	1							
CMI					1			
CMO								
IRA		4(4)				1(1)		
RC		15			1			
Cumulative % RC	0%	94%	94%	94%	100%	100%	100%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	1							
CAP	2			1				
DES			2			1		
IMP				1	1			1
IMO								1
IRA								
RC				1	1			1
Cumulative % RC	0%	0%	0%	33%	67%	67%	67%	100%

CORONA NAVAL ORDNANCE CENTER NAVAL WARFARE ASSESSMENT DIVISION CORONA, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVSEASYSOM
 Size: 129 Acres
 Funding to Date: \$0
 Estimated Funding to Complete: \$0



Base Mission: Provides materials and services to support ordnance systems

Contaminants: POLs

Number of Sites:

CERCLA: 1
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 2

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 0
 Medium: 0 Not Required: 2
 Low: 0

Sites Response Complete: 2	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1							
RI / FS								
RD								
RAC								
RAO								
IRA								
RC	1							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								
CAP	1							
DES								
IMP								
IMO								
IRA								
RC	1							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%

CORONADO NAVAL AMPHIBIOUS BASE

CORONADO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CINCPACFLT
 Size: 125 Acres
 Funding to Date: \$3,804,000
 Estimated Funding to Complete: \$13,882,000



Base Mission: Provides facilities and services for support of amphibious, unconventional, in-shore, riverine, and special warfare

Contaminants: Paint, solvents, unexploded ordnance, ash, blasting grit, POLs, heavy metals

Number of Sites:

CERCLA: 6
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 7

Relative Risk Ranking of Sites:

High: 5 Not Evaluated: 2
 Medium: 0 Not Required: 0
 Low: 0

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1		4	1				
RI / FS				3				2
RD				2		1		1
RAC				2	2			1
RAO								5
IRA			1(2)		3(5)			2(4)
RC								6
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA		1						
CAP								1
DES								1
IMP								1
IMO								1
IRA								1(3)
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

CROWS LANDING NAVAL AUXILIARY LANDING FIELD

CROWS LANDING, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: CINCPACFLT
 Size: 1,225 Acres
 Funding to Date: \$1,699,000
 Estimated Funding to Complete: \$13,490,000



Base Mission: Provides practice field for Naval planes from Naval Air Station Moffett Field, Naval Air Station Lemoore, and Naval Air Station Alameda; provides maintenance support for aircraft

Contaminants: POLs, solvents, heavy metals, pesticides, scrap metal

Number of Sites:

CERCLA: 8
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 9

Relative Risk Ranking of Sites:

High: 3 Not Evaluated: 0
 Medium: 2 Not Required: 3
 Low: 1

BRAC II

Sites Response Complete: 3

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	8							
RI / FS	2	2	2					
RD				2	3			
RAC	1				5			
RAO								3
IRA	1(1)							
RC	2	1			2			3
Cumulative % RC	25%	38%	38%	38%	63%	63%	63%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								
CAP		1						
DES					1			
IMP					1			
IMO								1
IRA	1(1)							
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

DIXON NAVAL RADIO TRANSMITTING FACILITY

DIXON, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVCOMTELCOM
 Size: 1,285 Acres
 Funding to Date: \$982,000
 Estimated Funding to Complete: \$3,739,000



Base Mission: Provides transmitter support for Naval Communication Station, Stockton

Contaminants: Liquid waste, solvents, heavy metals, PCBs, POLs

Number of Sites:

CERCLA: 4
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 4

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 0
 Medium: 0 Not Required: 0
 Low: 4

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI		1		3				
RI / FS					4			
RD					3			
RAC								
RAO								
IRA						3(3)		
RC					4			
Cumulative % RC	0%	0%	0%	0%	100%	100%	100%	100%

EL CENTRO NAVAL AIR FACILITY

EL CENTRO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CINCPACFLT
 Size: 63,137 Acres
 Funding to Date: \$11,266,000
 Estimated Funding to Complete: \$19,749,000



Base Mission: Maintains and operates facilities; provides services and material to support operations of aviation activities, operation forces and other activities

Contaminants: Acid, asbestos, ash, plating waste, POLs, PCBs, solvents, heavy metals

Number of Sites:

CERCLA: 17
 RCRA Corrective Action: 0
 RCRA UST: 4
 Total Sites: 21

Relative Risk Ranking of Sites:

High: 11 Not Evaluated: 3
 Medium: 1 Not Required: 1
 Low: 5

Sites Response Complete: 1	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	15							
RI / FS								15
RD	1			1				10
RAC		1			1			10
RAO					1			4
IRA		1(2)	2(2)	1(1)	3(5)	1(1)		10(11)
RC		1			1			15
Cumulative % RC	0%	6%	6%	6%	12%	12%	12%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	2							
CAP								4
DES	1							2
IMP								4
IMO								
IRA								
RC								4
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

EL TORO MARINE CORPS AIR STATION

IRVINE, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CMC
 Size: 4,855 Acres
 Funding to Date: \$46,756,000
 Estimated Funding to Complete: \$74,716,000



Base Mission: Marine Corps primary jet fighter facility on the West Coast; provides materials and support for aviation activities of the Marine Corps; provides housing for Marine Corps personnel

Contaminants: POLs, PCBs, pesticides/herbicides, trichloroethylene, volatile organic compounds

Number of Sites:	Relative Risk Ranking of Sites:		
CERCLA:	25	High:	10
RCRA Corrective Action:	0	Medium:	2
RCRA UST:	0	Low:	2
Total Sites:	25	Not Evaluated:	0
		Not Required:	11

NPL**BRAC III**

Sites Response Complete: 11

EXECUTIVE SUMMARY

Since 1943, the Marine Corps Air Station (MCAS) El Toro has been the center for Marine aviation operations on the Pacific Coast. The Station is located within Orange County, California along the eastern boundary of the City of Irvine, lies 8 miles southeast of the City of Santa Ana and 7 miles east of the Marine Corps Air Facility (MCAF) Tustin. The Station has been developed approximately 12 miles east of the Pacific Ocean on a relatively flat coastal plain, with coastal foothills of the Cleveland Nation Forest rising to the north and east. The Station occupies to total of 4,812 acres which includes 74 acres of housing facilities at MCAF Tustin. Current land use consists of crossing runways, aircraft hangers, flight line and maintenance areas, fueling facilities, a medical clinic, administration buildings, housing, a golf course, and agricultural and open lands.

Past operations that may have contributed to contaminated sites on the station include aircraft maintenance and refurbishing, vehicle maintenance, degreasing processes, painting, fuel storage, wash racks, sewage treatment, solid waste incineration and disposal, and fire-fighting training. During routine water quality monitoring in 1985, the Orange County Water District (OCWD) discovered the volatile organic compound (VOC) trichloroethylene, an industrial solvent known as "TCE," in an irrigation well located about half a mile west of the Station. Subsequent investigations concluded that MCAS El Toro is a source of the VOCs detected in groundwater. Drinking water supply wells are not affected by VOCs in the groundwater. Groundwater in the Irvine Subbasin is currently used only for irrigation. In the late 1980s, OCWD initiated a plan to use the groundwater as a water supply with the construction and operation of the Irvine Desalter Project (IDP). The implementation of the IDP has been on hold since 1994.

Because of the VOCs in groundwater, the U.S. Environmental Protection Agency (USEPA) placed the Station on the National Priorities List (NPL) in February 1990. In October 1990, the Department of the Navy (DoN) signed a Federal Facility Agreement (FFA) with the USEPA and the State of California for the remediation of MCAS El Toro.

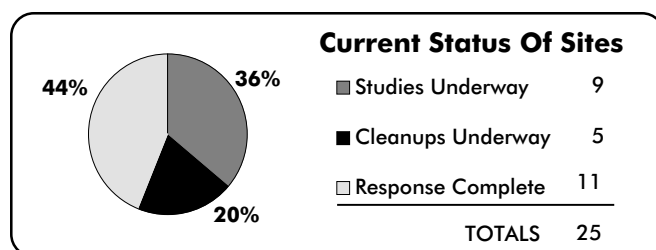
A total of 25 sites are addressed under the MCAS El Toro FFA. One site has been eliminated as the result of a RCRA Facility Assessment (RFA), and 11 other sites have been eliminated as the result of a No Action Record of Decision (ROD) signed in September 1997. The remaining 13 sites administered under the FFA are grouped into Operable Units (OU) for improved manageability. OU-1 is the regional groundwater contaminated with VOCs; OU-2A is the VOC source area; OU-2B & 2C include the four former landfill sites; and OU-3 includes the remaining sites being investigated for potential surface soil contamination.

In September 1993, MCAS El Toro was formally selected for closure under the Base Realignment and Closure Act (BRAC III). Operational closure of the Station is scheduled to be completed by July 1999.

As a result of BRAC and the implementation of President Clinton's Decision to Promote Early Reuse of Closing Bases by Expediting Environmental Cleanup, a bottom-up review of El Toro's environmental program was performed and summarized in a BRAC Cleanup Plan (BCP). Over 880 locations of concern (LOCs) requiring resolution of environmental issues have been identified at the Station. These LOCs consist of FFA managed sites, RCRA facilities, underground storage tanks (USTs), accumulation storage areas and others. To date, over 50% of the LOCs have been resolved to No Further Action (NFA), and 85% of the property is environmentally suitable for transfer.

Most of the success on eliminating LOCs has come in the way of UST closures. El Toro's UST Tiger Team has received formal regulatory closure for 230 of the over 400 USTs. So as not to impact the mission of MCAS El Toro, resolution of the remaining LOCs will follow operational draw down activities.

El Toro's environmental program is making great progress. Besides a No Action ROD being signed for 11 sites, an interim ROD was signed in September 1997 to address the contaminated soil at the VOC source area. The El Toro team is proceeding with remedial design and action plans. These plans include the transfer of soil vapor extraction (SVE) treatment equipment recently used in remediation activities at Norton Air Force Base. The partnership between the DoN and Air Force is one of the ways El Toro is expediting our remediation efforts. As for the VOCs in the regional groundwater, DoN is currently negotiating a settlement agreement with the Orange County Water District (OCWD). The agreement would address a multi-purpose groundwater project which would consolidate OCWD's planned water supply project, the Irvine Desalter Project (IDP) and DoN's obligations to remediate VOC contaminated groundwater which may include a monitored natural attenuation component. All four former landfill sites are in the Proposed Plan development phase with public comment periods planned in 1998.



EL TORO MCAS RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Under MCAS El Toro are well-draining silty clay loams and fine sandy loams with moderate to high infiltration rates. Depth to groundwater ranges from 50 feet beneath the Site 2 former landfill to over 200 feet beneath the runways. The VOC contaminated groundwater is roughly 100 feet below ground surface in the VOC source area. Surface drainage near MCAS El Toro generally flows southwest. Off station drainage from the hills and upgradient irrigated farmlands combine with on-station runoff and flows into four main drainage channels. After passing through light industrial areas in the City of Irvine, all four drainages become confluent with San Diego Creek southwest of the station. San Diego Creek feeds the Upper Newport Bay Ecological Reserve, a coastal wetlands.



NATURAL RESOURCES - Approximately 75% of the native habitats of MCAS El Toro have been cleared for agriculture, housing, and station operations. Native vegetation and animal species are primarily condensed in an approximately 1,200-acre area located in the northeast portion of the station. The natural habitat located in this portion of the station is used by many wildlife species. The area is heavily used by numerous wintering avian species, including neotropical birds and birds of prey. In addition to bird species, reptiles and mammals are also present in the natural area as well as a smaller number of amphibian species. Only one species, the California gnatcatcher, is listed as threatened under the Federal Endangered Species Act.



RISK - Baseline Human Health Risk Assessments and Ecological Risk Assessments are conducted at each site as part of the Remedial Investigations (RIs). The 13 sites still managed under the FFA require action either due to risks being outside the acceptable risk range or because of regulatory requirements such as the protective cover of former landfills. Since the groundwater is not used for domestic purposes, there is currently no risk associated with the VOCs contaminated groundwater.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - MCAS El Toro was included on the National Priorities List (NPL) in February 1990 based on a Hazard Ranking System (HRS) score of 40.83. The NPL listing was due to the presence of volatile organic compound (VOC) contamination in the groundwater down gradient of the Station.



LEGAL AGREEMENTS - A Federal Facility Agreement (FFA) between the Department of the Navy (DoN), the US EPA, the California EPA (Cal-EPA) Department of Toxic Substances Control (DTSC), and the California Regional Water Quality Control Board (CRWQCB), Santa Ana Region, was signed in October 1990. The agreement established lead and support agency roles, general scopes of work, schedules, and regulatory review turnaround times for primary project milestones and specified that investigations begin with RIs and proceed to Records of Decision (RODs). The Installation Restoration Program (IRP) sites were grouped into three Operable Units (OUs); OU1 includes VOC-contaminated regional groundwater, on- and off-Station (Site 18); OU2A includes sites believed to be contributing to the regional VOC plume emanating from the southwest portion of the station (Sites 24); OU2B is former station landfills (Sites 2 and 17); OU2C is former station landfills (Sites 3 and 5); OU3 includes all remaining CERCLA sites which are focused on the potential for surface soil contamination.

In 1985, the OCWD discovered the organic solvent TCE in two off-site wells and initiated an investigation to determine the source and extent of contamination. In July 1987, the CRWQCB, Santa Ana Region, issued a Cleanup and Abatement Order that required MCAS El Toro to submit a Plan of Action (POA) to address off-Station groundwater contamination, this became the Regional Groundwater Investigation for Site 18.



PARTNERING - The BRAC Cleanup Team (BCT) has established a partnering agreement and team charter that incorporates the latest and most efficient management techniques to coordinate installation restoration (IR) activities. Team building seminars were held in October 1994 and May 1996. Examples of efficient management techniques and team building include; setting some agency review times shorter than required under the FFA; concurrent document review among BCT members to improve formal draft FFA submittals; and withdrawal of portions of sites from CERCLA at any time in the process if the data supports a CERCLA petroleum exclusion. The team was also able to fast-track the September 1997 signing of two RODs that resulted with 11 sites being eliminated from the environmental program at El Toro, and the approval of remedial design and actions for the soil contamination at the VOC source area.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in 1990 and converted to a Restoration Advisory Board (RAB) in January 1994. The 50 member RAB meets every other month. All RAB meetings (26 through FY97) are open to the public. Technical presentations to assist RAB members in understanding complex environmental issues are provided on a bi-monthly basis. As of September 1997, the RAB has reviewed 24 technical documents developed by the DoN in support of El Toro's environmental programs; 10 fact sheets have been presented to the public.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in April 1991. A total of 10 fact sheets have been presented to the public, the first in November 1991. The CRP was revised in March 1996. Two formal public comment meetings were held in FY96. The El Toro team has provided numerous other public meetings, site tours, open houses, and special presentations to concerned homeowner associations. MCAS El Toro has a positive relationship with the community.



INFORMATION REPOSITORY - In 1991, an Information Repository was established at the Heritage Park Regional Library in Irvine. The Administrative Record was also established in 1991. Administrative Record files are located both at the El Toro BRAC Environmental Office and at Southwest Division (SWESTDIV), Naval Facilities Engineering Command (NAVFAC) in San Diego, California.

BASE REALIGNMENT AND CLOSURE



BRAC - In September 1993, MCAS El Toro was formally selected for closure under the Base Realignment and Closure Act (BRAC III). Operational closure of the Station is scheduled to be completed by July 1999.



BRAC CLEANUP TEAM - A BRAC Cleanup Team (BCT) was established in October 1993. The BCT consists of representatives from Cal-EPA DTSC, US EPA (Region IX), and the Department of the Navy (DoN).



DOCUMENTS - The latest BRAC Cleanup Plan (BCP) update was completed in March 1997. The BCP is updated annually. The Environmental Baseline Survey (EBS) was completed in April 1995. In the EBS, the Environmental Condition of Property was assessed according to Department of Defense (DoD) and American Society for Testing and Materials (ASTM) guidelines. The results are shown in the chart below. The final EBS identified 63% of the property as Category 1. USEPA and Cal-EPA (DTSC) approved the findings.

Environmental Conditions of Property Classification						
1	2	3	4	5	6	7
2,982 acres	5 acres	5 acres	0 acres	0 acres	1,084 acres	662 acres

EL TORO MCAS RELEVANT ISSUES



LEASE/TRANSFER - It is anticipated that the Finding of Suitability to Transfer (FOST) or Finding of Suitability to Lease (FOSL) activities will start in 1998.



REUSE - The County of Orange and Cities of Irvine and Lake Forest formed the El Toro Reuse Planning Authority (ETRPA) in March 1994. In January 1995, the County withdrew from the ETRPA to pursue formation of a new reuse committee. In April 1995, the County of Orange was recognized as the new Local Redevelopment Authority (LRA). A draft reuse plan was completed during August 1996. The final reuse plan was adopted in December 1996. The LRA is developing reuse parcels inline with the Station being used as an airport with compatible non-aviation uses. The decision is being challenged locally in court even though voters

passed two measures which proposed to allow the facility to be converted to a commercial airport.



FAST TRACK INITIATIVES - The MCAS El Toro team has implemented various fast track procedures such as using mobile laboratories for accelerated analytical turnaround times, and in-field decision making. The team has used the latest immunoassay field screening kits to reduce analytical costs while maintaining Data Quality Objectives (DQOs). In addition, the team continues to evaluate other opportunities and methods to accelerate cleanup such as presumptive remedies, removal actions, and new technologies that may be applicable for MCAS El Toro site specific conditions.

HISTORICAL PROGRESS

FY82

Site 1 - An Interim Remedial Action (IRA) was completed in FY82 with the incineration of excess ordnance compounds at the Explosive Ordnance Disposal Range.

FY86

Sites 1-17 - An Initial Assessment Study (IAS) (equivalent to a Preliminary Assessment (PA)), completed in May 1986, identified 17 potentially contaminated sites at MCAS El Toro. Seven sites (Sites 6-8, 10, 12, 13 and 15) were found not to pose a threat to human health or the environment, and No Further Action (NFA) was recommended for these sites. Nine sites (Sites 1-3, 5, 9, 11, 14, 16 and 17) were recommended for further investigation. Remedial measures were recommended for Site 4.

Site 18 - A Regional Groundwater Investigation was added after an investigation by the Orange County Water District (OCWD) determined that the organic solvent (TCE) and other volatile organic compounds (VOCs) detected in groundwater outside the Station had originated at MCAS El Toro.

Sites 19-23 - The EPA's review of the IAS and further investigations by the Navy resulted in five additional sites being recommended for further action. These are sites created primarily by fuel leaks and spills.

Sites 1-23 - Meetings between the state, the EPA and the Department of the Navy (DON) in September 1986 resulted in these sites being recommended for further investigation in the Installation Restoration Program (IRP) reopening Sites 6-8, 10, 12, 13 and 15 which were previously recommended for NFA.

FY88

UST group 18 - As a result of a refueling system upgrade, Underground Storage Tank UST 398 was investigated in 1988. As part of the system upgrade, a Soil Characterization Study was conducted at the Tank 398 site and petroleum hydrocarbon contamination was identified in soil below the tank. The Orange County Health Care Agency was notified and a report of an unauthorized leak was submitted by the DON in September 1988. The County directed MCAS El Toro to conduct an investigation to determine the extent of contamination.

Site 1 - An IRA consisting of access control was installed in July 1988 at the Explosive Ordnance Disposal Range and is expected to be in place until FY01.

FY89

Site 18 - An IRA was implemented at the Regional Groundwater Investigation Site that involved retrofitting perimeter monitoring well pumps, conducting a treatability study to determine the feasibility of using activated carbon to remove contaminants from groundwater, and constructing an activated carbon treatment plant. The plant began operation in June 1989

and was used to treat the organic solvent TCE-contaminated groundwater pumped from three existing wells to below detection limits. System operation stopped in 1993 on approval of the Santa Ana Region, California Regional Water Quality Control Board (CRWQCB) since the site was being handled in an ongoing Remedial Investigation/Feasibility Study (RI/FS).

UST group 18 - A Preliminary Site Assessment was conducted to determine the lateral and vertical extent of soil contamination at the site.

FY90

Site 18 - A Site Inspection (SI) was completed at the Regional Groundwater Investigation Site and found significant levels of the organic solvent TCE in shallow groundwater at the base boundary and limited contaminant migration off site. In April 1989, the OCWD also completed an off-site groundwater investigation and documented the existence of a large dilute plume of the organic solvent TCE in groundwater that extended over three miles northwest from the base.

FY92

UST group 18 - A Site Assessment was completed. Significant concentrations of petroleum hydrocarbons, benzene, toluene, ethylbenzene, and xylene (BTEX) were found in groundwater.

FY93

SWMU 1 - An RCRA Facility Assessment (RFA) was completed. A Visual Site Inspection, completed in August 1991, identified 289 potential solid waste management units (SWMUs) at MCAS El Toro, including approximately 30 sites that the CRWQCB, Santa Ana Region, had requested be further investigated. One hundred and fifty-seven SWMUs were recommended by the DON for further investigation. Field work was initiated in September 1992. The RFA was completed in March 1993. SWMUs of concern have been grouped into SWMU 1 for corrective measures.

Site 18 - Completed IRA consisting of activated carbon treatment plant.

FY94

Initial BRAC Cleanup Plan (BCP) developed.

Site 2 - Construction was completed at the Magazine Road Landfill involving the installation of slope stabilization.

UST group 18 - Planning for free product recovery began.

FY95

Update of the BRAC Cleanup Plan (BCP).

USTs 1-17 - Planning began for remediation of various UST sites by ex-situ and in-situ methods.

UST group 18 - Construction of free product recovery system began.

UST groups 1-17 - Forty-one inactive USTs were removed.

EL TORO MCAS HISTORICAL PROGRESS

FY96

Community Relations Plan (CRP) and BRAC Cleanup Plan (BCP) updated.
OUs 2A, 2B and 2C - RI reports were completed and draft feasibility studies were submitted in accordance with the FFA.
OU1 - Draft final interim action feasibility study (IAFS) was submitted for agency approval.

UST Group 18 - Operation of the free product recovery system continued (approximately 7,800 gallons recovered to date).
UST Groups 1 and 18 - Soil Vapor Extraction (SVE) systems installed and operated at UST group 18 (Tank 398) and UST group 1 (Tank Farm 2) sites. Treated hydrocarbon impacted soil at the on-station bioremediation facility (1,000 tons treated to date).
 178 USTs to date have obtained formal regulatory closer.
 222 SWMU locations of concern to date require No Further Action.

PROGRESS DURING FISCAL YEAR 1997

FY97

A No Action Record of Decision was signed for eleven sites, thus removing them from the CERCLA program and allowing for unrestricted use regarding the soils at those former sites.
OU2A (Site 24) - An Interim ROD was signed for the vadose zone for OU2A (Site 24) thus allowing formal soil vapor extraction (SVE) technology to be used to remediate the vadose zone.

Continue treatment of hydrocarbon impacted soil at the on-station bioremediation facility (2,000 tons treated to date).
UST Group 18 - Continue operation of the free product recovery system (10,000 gallons recovered and recycled to date) and SVE system (50,000 lbs of hydrocarbons removed to date).
 Operation of the SVE system at Tank Farm 2 (50,000 lbs of hydrocarbons removed to date).
 228 USTs to date have obtained formal regulatory closer.
 222 SWMU locations of concern to date require No Further Action.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

OUs 1, 2A, 2B and 2C (groundwater and former landfill sites) - Draft RODs will be submitted to the regulators for comment.
OU3 (Sites 8, 11, and 12) - Proposed Plans will be completed.
OU3 (Sites 7, 14, and 16) - Draft FS reports will be completed.
 Anticipate regulatory closure of 50 UST sites.
 Continue treatment of hydrocarbon impacted soil at the station bioremediation facility.
UST Group 18 - Continue operation of the SVE and free product recovery systems.
Tank Farm 2 - Continue operation of the SVE system.
 Continue to close SWMUs following reduction of operational activities.

FY99

MCAS El Toro operationally closes.
Site 24 - Start formal remediation activities on the Site 24 vadose zone using SVE technology.
 Sign RODs for groundwater and all four former landfill sites.
OU-3 (Sites 8, 11, and 12) - Sign ROD.
OU-3 (Sites 7, 14, and 16) - Submit draft Proposed Plan to regulators for comment.
 Complete remediation activities at Tank Farm 2.
 Begin closure activities at all USTs and SWMUs that previously supported station operations.
Site 1 (Explosive Ordnance Disposal Range) - Commence closure activities.

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	3							
RI / FS	13	2	4	3			2	
RD	1		4	4		1	1	
RAC	1		1	8		1	2	
RAO							1	1
IRA		2(4)	2(4)		4(4)	2(2)	2(2)	2(2)
RC	10	1	3	6		1	3	1
Cumulative % RC	40%	44%	56%	80%	80%	84%	96%	100%

FALLBROOK NAVAL ORDNANCE CENTER, PACIFIC DIVISION DETACHMENT FALLBROOK, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVSEASYSKOM
 Size: 8,853 Acres
 Funding to Date: \$83,000
 Estimated Funding to Complete: \$7,547,000



Base Mission: Stores fleet and marine Corps missiles and conventional ammunition; maintains facilities of air-launched missiles

Contaminants: POLs, heavy metals, unexploded ordnance, solvents, ash, electrolyte, acid, ordnance compounds, paint, PCBs, refuse, refuse with hazardous waste

Number of Sites:

CERCLA: 11
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 12

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 3
 Medium: 5 Not Required: 1
 Low: 3

Sites Response Complete: 1

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1							
RI / FS								10
RD								9
RAC								
RAO								
IRA								9(10)
RC	1							10
Cumulative % RC	9%	9%	9%	9%	9%	9%	9%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								1
CAP								1
DES								1
IMP								1
IMO								1
IRA	1(2)							
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

IMPERIAL BEACH OUTLYING LANDING FIELD

IMPERIAL BEACH, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CINCPACFLT
 Size: 450 Acres
 Funding to Date: \$339,000
 Estimated Funding to Complete: \$8,009,000



Base Mission: Supports helicopter training in conjunction with NAS North Island

Contaminants: POLs, PCBs, inert material, blasting grit, solvents

Number of Sites:

CERCLA: 5
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 5

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 5
 Medium: 0 Not Required: 0
 Low: 0

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI								5
RI / FS								2
RD								4
RAC								3
RAO								1
IRA			1(1)					1(1)
RC								5
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

LEMOORE NAVAL AIR STATION

LEMOORE, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: CINCPACFLT
 Size: 39,173 Acres
 Funding to Date: \$15,105,000
 Estimated Funding to Complete: \$13,966,000



Base Mission: Maintains and operates facilities and provides services and materials to support operations of aviation activities

Contaminants: Heavy metals, vinyl chloride, volatile and semi-volatile organic compounds

Number of Sites:

CERCLA: 17
 RCRA Corrective Action: 0
 RCRA UST: 2
 Total Sites: 19

Relative Risk Ranking of Sites:

High: 8 Not Evaluated: 0
 Medium: 2 Not Required: 6
 Low: 3

Sites Response Complete: 6	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	15							
RI / FS	1	5	7	2	2			
RD		1		3		1	1	
RAC			1	1	2		1	1
RAO					1	1	1	1
IRA	1(1)		2(2)	1(1)				
RC		5	5	1	1	1	2	2
Cumulative % RC	0%	29%	59%	65%	71%	76%	88%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								
CAP	1		1					
DES			1					
IMP	1			1				
IMO						1		
IRA								
RC	1					1		
Cumulative % RC	50%	50%	50%	50%	50%	100%	100%	100%

LONG BEACH NAVAL COMPLEX

LONG BEACH, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVFACENGCOM
 Size: 1,329 Acres
 Funding to Date: \$45,620,000
 Estimated Funding to Complete: \$92,500,000



Base Mission: Closed; NAVFAC is caretaker until transfer. Previously provided support and supplies for assigned surface craft and ships; drydocking; research and test work; housing; and hospital and clinical services

Contaminants: Chlorinated solvents, solvents, acid, blasting grit, paint, heavy metals, industrial wastewater, industrial liquid waste, asbestos, POLs, pesticides

Number of Sites:	Relative Risk Ranking of Sites:
CERCLA: 24	High: 7 Not Evaluated: 0
RCRA Corrective Action: 0	Medium: 4 Not Required: 10
RCRA UST: 0	Low: 3
Total Sites: 24	

BRAC II, IV

Sites Response Complete: 10

EXECUTIVE SUMMARY

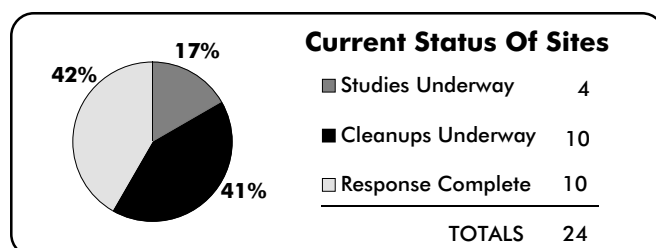
Long Beach Naval Complex (LBNC) includes Naval Shipyard (NSY) Long Beach and its four associated housing areas (Los Alamitos, Palos Verdes, San Pedro, and Whites Point), Naval Station (NS) Long Beach and its two associated housing areas (Savannah/Cabrillo and Taper Avenue), and Hospital (NAVHOSP) Long Beach.

NS and NSY are located on the south side of Terminal Island within the boundaries of the cities of Los Angeles and Long Beach. The NAVHOSP is located in the northeast corner of the City of Long Beach. Palos Verdes, San Pedro, and Taper Avenue housing areas are located in southwestern Los Angeles County within the community of San Pedro in the City of Los Angeles. Whites Point housing is located south of San Pedro and Taper Avenue housing within the community of San Pedro in the City of Los Angeles. Los Alamitos housing is located east of Orange County in the City of Los Alamitos, and Savannah/Cabrillo housing is located in the northeast corner of the City of Long Beach. LBNC has been an industrial facility for over fifty years. Typical operations that contributed to contaminated sites at NS include: laundry and dry cleaning, steam plant operations, air compressor operations, boat working, wet paper destruction and paint bucket cleaning. Typical operations that contributed to contaminated sites at NSY include: ship repair and maintenance, vehicle maintenance and repair, utility maintenance and operation, dip tanks, boiler repair and maintenance, vapor degreasing, machine shops, pipe-fitting, electrical shops, painting, abrasive blasting, weapons system shops, and petroleum product and hazardous material storage. Previous operations that contributed to contaminated sites at San Pedro and Palos Verdes housing areas include: disposal of ships wastes, drilling mud and construction debris, fuel storage, and fire fighter training. Primary sites of concern are disposal pits into which all types of wastes were disposed of. The only operations that contributed to contaminated sites at NAVHOSP are generation of medical wastes and underground gasoline tanks.

Currently, there are eight sites at NSY, seven sites at NS, and four sites at the housing areas in the study phase. All of these are non-NPL sites; however, the CERCLA process is being followed. At the NSY, RI/FS is underway at six sites (Sites 8-13). SI has been completed at one site (Site 6B). One site (Site 7) is managed under the NS. At the NS, two RI/FSs are underway at seven sites (Sites 1-6A and Site 7). Corrective measures are underway at the NS NEX Gas Station. At the housing areas, Non-Time-Critical Removal Action (RA) for four sites (sites 2, 5, 11 and 12), was completed in April 97, PA for AOC (site 7) was completed in June 97. The BRAC Cleanup Team agreed that natural attenuation was the best remedial action. Site closure was successfully obtained after three rounds of groundwater monitoring.

The NAVHOSP, and NS and its associated housing were identified for closure in BRAC II. The NSY and its Associated Housing were identified for closure in BRAC IV. The NS and its housing areas were closed 30 September 1994. NAVHOSP activities ceased 31 December 1993 and was officially closed 31 March 1994. NS is now in caretaker status. The NAVHOSP was transferred to the City Of Long Beach in May 97. The NSY and its housing was transferred September 97.

Site 7 (NS and NSY), Harbor Sediments, presents the biggest challenge for cleanup at LBNC. The initial estimate of \$1.2 billion to complete closure of the site has since been reduced to \$200 million. Another critical issue is the designation of groundwater underlying LBNC as Beneficial Use for drinking water. This designation requires that groundwater be cleaned up to Maximum Contaminant Levels (MCLs). The Regional Water Quality Control Board agreed with the Navy that the most appropriate beneficial use of groundwater would be for aquatic purposes and that Ocean Plan standards were more appropriate than MCL's.



LONG BEACH NAVAL COMPLEX RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Land use in the vicinity of LBNC is port-related, commercial, or industrial. Most of NS and NSY are built on manmade land constructed of hydraulic fill which is isolated hydrogeologically and varies in thickness, but is typically less than 200 feet. The Mole, upon which Sites 1-4 are located, is a large U-shaped breakwater constructed in 1944 which forms the West Basin of the Long Beach Harbor. Potential for contaminant migration off-base is low. Groundwater movement is influenced by tides, has low velocity, and is also brackish and unusable. Surface drainage is discharged through storm drains to the West Basin of the Long Beach Harbor. Land use in the vicinity of Los Alamitos is a mixture of residential, commercial, and agricultural. Land use in the vicinity of Whites Point housing is primarily residential and commercial.

The San Pedro, Palos Verdes, and Taper Avenue housing areas are bounded residential, commercial, and industrial areas. These three housing areas are adjacent to the Defense Fuel Support Point (DFSP), an operating facility whose primary mission is to receive, store, and distribute fuels for ships, aircraft, and other vehicles in support of military bases. The DFSP facility is surrounded by the housing areas. Regional surface drainage flows via ravines and large culverts into Los Angeles Harbor. Prior to 1971, surface drainage was to Harbor Lake. After 1971, Harbor Lake Dam was constructed. A small percentage of the potable water used within a 4-mile radius of the housing areas comes from groundwater.



NATURAL RESOURCES - The Terminal Island area is highly industrialized. There is little or no natural terrestrial habitat within the Naval Complex. The NSY is mostly paved; the NS does include some landscaped areas between the buildings. The harbor is an important nesting and feeding area for many coastal migratory birds. The black-crowned night-heron has established an extensive rookery in several trees on the NS. This bird is considered a sensitive migratory bird and is afforded protection under the Migratory Bird Treaty Act. The California brown pelican and least tern, both Federal endangered species, use the NS and surrounding waters as foraging and resting areas.

The San Pedro, Palos Verdes, and Taper Avenue housing areas consist almost entirely of graded and previously cleared land. The developed areas on and around the sites are landscaped with lawns and non-native shrubs and trees. At one site there is a small area which is inhabited by the California Gnatcatcher, a threatened species. The Defense Fuel Support Point facility is a habitat for the San Pedro Blue Butterfly which is endangered.



RISK - The DOD Relative Risk Site Evaluation Model ranked four sites at NS and three sites at NSY as high relative risk. The high ranking was due to contaminated soil and groundwater. A Baseline Risk Assessment was completed for Sites 1-6A in June 1995. A Risk Assessment was completed for Site 7 as a part of the draft RI report in February 1996. A Draft Baseline Risk Assessment was completed for Sites 8-13 in April 1996.

REGULATORY ISSUES



PARTNERING - A partnering agreement was developed at the BRAC Cleanup Plan (BCP) strategy camp on 16 November 1994.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - NS and NSY formed a joint Technical Review Committee (TRC) in July 1992. The TRC was converted to a RAB in April 1994. The Long Beach Naval Complex RAB meets at least once every other month.

A RAB was formed for San Pedro/DFSP in FY95. The first RAB meeting was attended by several hundred people concerned about the reuse of Taper housing. After explaining the intent and purpose of the RAB to the community, the RAB has gained widespread community support. The San Pedro/DFSP RAB meets quarterly.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in August 1993 for NS and NSY. Four Fact Sheets have been released. A public meeting was held in July 1993. The CRP will be updated in FY98. A CRP for the housing areas in San Pedro was published and two Information Repositories were established in May 1994. Three Fact Sheets have been released.



INFORMATION REPOSITORY - The Information Repository for NS and NSY was set up in FY93 at the Long Beach Public Library. An Administrative Record was also established in FY93 and is on file at SWDIV. Information Repositories for the housing areas in San Pedro are located at San Pedro Public Library and Miraleste Branch of the Palos Verdes Public Library.

BASE REALIGNMENT AND CLOSURE



BRAC - In March 1992, NS and NAVHOSP Long Beach were identified in the Base Realignment and Closure Act (BRAC) of 1990 (BRAC II). NSY Long Beach and Associated Housing were identified in BRAC of 1995 (BRAC IV).



BRAC CLEANUP TEAM - A BCT was formed in November 1993 for NS and NAVHOSP. The same BCT covers the NSY and Associated Housing. The BCT is composed of the BRAC Environmental Coordinator, a Cal-EPA Department of Toxic Substances and Control (DTSC) representative, and an US EPA representative. The BRAC Cleanup Plan (BCP) Project Team consists of a variety of technical, operational, reuse, and administrative specialists. The BCT has been instrumental in accelerating the cleanup process through various partnering efforts such as discussion workshops and telephone conferences, and the development of a partnering agreement. The BCT has also been available during field operations to make real time decisions.



DOCUMENTS - The initial BCP was completed in March 1994 and updated in 1995, 1996 and 1997. An Environmental Baseline Survey (EBS) was completed in April 1994 for NS and NAVHOSP. Cal-EPA DTSC did not concur with the Community Environmental Response Facilitation Act (CERFA) clean acreage identified in the EBS for NS because they felt the groundwater was not fully characterized. A supplemental EBS was completed in March 1997 updating the information included in the original April 94 submittal. The environmental condition of the property has been revised based on the current supplemental EBS. The groundwater is currently being addressed in the RI/FS. EBS for the NSY was completed in Nov 1996. A separate EBS was completed for NSY housing areas in August 1996.

Environmental Conditions of Property Classification

1	2	3	4	5	6	7
135 acres	0 acres	0 acres	65 acres	0 acres	778 acres	351 acres



LEASE/TRANSFER - Four Findings of Suitability to Transfer (FOSTs) and two Finding of Suitability to Lease (FOSLs) have been completed. A portion of Savannah/Cabrillo housing was transferred in July 1994, the remaining housing will be transferred in FY98. The NAVHOSP Parcel B was reverted to the City of Long Beach in October 1995, and Parcel A was transferred to the City in May 1997. Two leases were executed with the City of Los Angeles and City of Long Beach in FY96 and FY98 for the NS Site 6A parcels. Another lease was executed with the City of Long Beach for the NS Mole in FY97. The Taper Avenue housing property is expected to be transferred in FY98. A FOSL for the entire NS will be prepared in FY98. NAVSTA is expected to be transferred in April 2000, and NSY is expected to be transferred in Jan 2001. Whites Point Housing was transferred to the Air Force under a federal-to-federal transfer on March 1997. Los Alamitos Housing transfer is anticipated in Nov 1997. San Pedro Housing transfer is expected in April 1999. Palos Verdes Housing transfer is expected in April 1999.

LONG BEACH NAVAL COMPLEX RELEVANT ISSUES



REUSE - The City of Long Beach Naval Properties Reuse (NPR) Committee developed a draft Reuse Plan and submitted it to the City Council for approval in July 1993. The draft final Reuse plan was submitted by City Council to the Navy in August 1993 and included recommendations for all NS properties that are within the City of Long Beach. The Long Beach LRA submitted a final redevelopment plan to the Navy and HUD in August 1995. HUD approved the plan on 28 October 1995. The Los Angeles LRA plans to submit the redevelopment for Taper Avenue Housing and Site 6A parcel plan to the Navy and HUD in FY97. The City of Long Beach Economic Development Commission Shipyard

Reuse Advisory Committee submitted recommendations for the surplus of NSY property to the City Council on July 2, 1996. The final Comprehensive Reuse Plan was submitted by the City Council to the Navy and HUD in July 1996. HUD approval is expected in FY97.



FAST TRACK INITIATIVES - The following five DOD initiatives are being implemented at the Naval Complex: (1) identification of clean parcels, (2) partnering, (3) overlapping phases of the cleanup process, (4) improved contract procedures, and (5) interfacing with the Reuse Plan.

HISTORICAL PROGRESS

FY83

Sites 1-7 (NS) and 8-12 (NSY) - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA), identified 12 sites. Site 7 was originally split into NS Harbor Sediments (Site 7A) and NSY Harbor Sediments (Site 7A), but it is presently being addressed as one site under the NS IR Program.

FY89

Sites 1-7 (NS) and 8-13 (NSY) - A RCRA Facility Assessment (RFA) was completed as part of a Part B permit application. Thirteen potential solid waste management units (SWMUs) were identified. The first 12 SWMUs were the same as Sites 1-12 identified in the IAS. One additional site, Site 13 - the Tank Farm near Building 303, was identified on the NSY.

FY90

Sites 2, 5, 11, 12, 31 and 32 (San Pedro/DFSP) - A PA was completed in August 1990 for Sites 2, 5, 11, and 12 at San Pedro, and Sites 31 and 32 at DFSP. All six sites were recommended for SI.

FY92

NAVHOSP - A PA identified no potentially contaminated sites; therefore, no further action was recommended.

Site 6 (San Pedro/DFSP) - A Federal Facility Preliminary Assessment Report was completed by US EPA and identified one additional site at DFSP, Site 6. A SI was recommended for Site 6.

FY93

Sites 1-7 (NS) and 8-13 (NSY) - A Site Inspection (SI) identified potential contaminants in the soil. The report recommended further investigation at Sites 1-13.

FY94

Site 6B (NSY) - This site was not included in the 1983 IAS due to a real estate transaction which occurred at the time the IAS was conducted. A PA for Site 6B completed in October 1993 recommended a limited soil and groundwater investigation.

Site 6A (NS) - A Removal Site Evaluation (RSE) was completed to support an interim lease to the Port of Los Angeles. The RSE concluded that no action for the surface soil was needed and the site was suitable for industrial use.

Sites 8 and 13 (NSY) - The final RI/FS Work Plan was completed and approved. Implementation of field works was delayed due to lack of funding.

Site 11 (NSY) - An Interim Remedial Action (IRA) which involved a protective covering to prevent off-site migration and reduce potential long-term risks was completed. An IRA which involved relocation of sandblast grit, placement of a Gunite cap and revegetation of the hillside was completed.

UST 1 (NAVHOSP) - A removal action to remove tanks and contaminated soil was completed.

Sites 2, 5, 6, 11, 12, 31 and 32 (San Pedro/DFSP) - A SI completed in November 1993 recommended further investigation for all these sites.

FY95

Site 7 (NS) - A revised Risk Assessment Work Plan and Sampling and Analysis Plan were completed and approved. Field work began.

Sites 8 and 13 (NSY) - RI Field works began.

Site 12 (NSY) - An IRA which involved asphaltting of a dirt parking lot was completed.

Sites 2, 5, 11 and 12 (San Pedro) - A RSE completed in September 1995 recommended remedial action for these sites.

Site 7 (San Pedro) - A new Area of Concern (AOC) was identified in the September 1995 RSE. A PA will be prepared to address this AOC.

FY96

Sites 1-6A (NS) - Final RI report issued.

Site 3 (NS) - Final EE/CA and Action Memorandum were issued. Removal of arsenic contaminated soils completed.

Site 6B (NSY) - A Final SI completed. The regulatory agencies concurred with the no-further-action recommendation.

Site 7 (NS) - Draft RI report was issued. Extensive comments received. Regulators do not agree with the no action recommendation (leaving the sediments in place). Comment resolution began with regulators.

Sites 8-13 (NSY) - Draft RI report was issued. Regulators request the risk assessment include an unpaved scenario to account for NSY closing and building that may be torn down with open space left behind. This effort required recalculating all the risk data.

UST 1 (NAVHOSP) - An Initial Site Characterization to determine the extent of soil and groundwater contamination was completed. Three rounds of groundwater monitoring required by the Regional Water Quality Control Board were completed. Site closure was received.

Sites 2, 5, 11 and 12 (San Pedro) - A draft EE/CA was issued. Comments were received from the regulators requesting groundwater information.

Sites 6, 31 and 32 (DFSP) - A draft RSE Work Plan was completed. Comments received from regulators.

NSY - A draft EBS was issued in July and is currently under review by the regulatory agencies. A separate EBS was completed for NSY housing areas.

NAVHOSP Parcel B - Was reverted to the City of Long Beach

Two leases have been executed with the City of Los Angeles and City of Long Beach.

UST 01 (NH) - Completed investigation.

Parcel B - Transferred to the city.

NS - Completed FOSL for NS.

Parcel A (NH) - Completed FOST.

LONG BEACH NAVAL COMPLEX PROGRESS DURING FISCAL YEAR 1997

FY97

Sites 1-6A (NS) - Completed one year groundwater monitoring program, completed RI, initiated FS.

Site 6A (NS) - Completed off-site groundwater investigation.

Site 7 (NS) - Completed draft final RI

Site 14 (NS) - Completed SI, initiated ESI

UST 1 (NS) - Continue soil and GW remediation

Sites 2, 5, 11 and 12 (San Pedro) - RA completed.

Site 7 (San Pedro) - PA/SI completed in June 1997

Sites 8-13 (NSY) - Continue RI

UST 1 (NSY) - Removal of USTs and contaminated soil

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Sites 1 and 2 (NS) - Complete FS, PP/ROD and initiate remedial action

Sites 3-6A (NS) - Continue groundwater monitoring efforts until November 1998. Complete FS and PP/ROD

Site 7 (NS) - Complete RI, initiate FS

Site 14 (NS) - Finalize ESI, initiate EE/CA, AM

UST 1 (NS) - Complete soil vapor extraction remediation and product extraction.

Sites 2, 5, 11 and 12 (San Pedro) - Complete removal action report, initiate 2nd EE/CA and AM.

Site 5 (San Pedro) - Complete RA report

Sites 8-13 (NSY) - Initiate groundwater monitoring program and initiate FS

UST 1 (NSY) - Removal Action

FY99

Sites 1 and 2 (NS) - Complete Remedial Action

Site 7 (NS) - Complete FS

UST 1 (NS) - Closure of NEX

Sites 8-13 (NSY) - Complete FS, PP/ROD, and initiate remedial action.

UST 1 (NSY) - LTM

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	15	2						2
RI / FS	17	3	2					2
RD			4	2				4
RAC	1		6		2	1		2
RAO				1	1	1	1	3
IRA	3(4)	2(2)	5(5)		1(1)			4(4)
RC	9	1	3	1	3	1	1	5
Cumulative % RC	38%	42%	54%	58%	71%	75%	79%	100%

LOS ANGELES NAVAL AND MARINE CORPS RESERVE CENTER

LOS ANGELES, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVRESFOR
 Size: 0.01 Acres
 Funding to Date: \$0
 Estimated Funding to Complete: \$1,943,000



Base Mission: Trains, administers and mobilizes Naval and Marine Corps Reserve units.

Contaminants: VOCs

Number of Sites:

CERCLA: 0
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 1

Relative Risk Ranking of Sites:

High: 1 Not Evaluated: 0
 Medium: 0 Not Required: 0
 Low: 0

Sites Response Complete: 0	

PROGRESS AND PLANS

UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA							1	
CAP								1
DES								1
IMP								1
IMO								1
IRA					1(1)			
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

MARE ISLAND NAVAL SHIPYARD VALLEJO, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVFACENGCOM
 Size: 5,646 Acres
 Funding to Date: \$42,507,000
 Estimated Funding to Complete: \$110,747,000



Base Mission: Closed; NAVFAC is caretaker until transfer. Previously maintained and repaired ships; provided logistical support for assigned ships and service craft

Contaminants: Heavy metals, volatile organic compounds, PCBs, pesticides, lead oxide, POLs

Number of Sites:		Relative Risk Ranking of Sites:		
CERCLA:	28	High:	12	Not Evaluated: 1
RCRA Corrective Action:	0	Medium:	13	Not Required: 0
RCRA UST:	8	Low:	10	
Total Sites:	36			

BRAC III

Sites Response Complete: 0

EXECUTIVE SUMMARY

The former Mare Island Naval Shipyard (MINS) is located about 25 miles northeast of San Francisco and lies on a peninsula in San Francisco Bay. This former MINS was established in 1854. The former MINS launched 513 vessels, ranging from landing crafts to battleships and more recently, nuclear submarines. Its activities have included repair and maintenance of sea vessels, logistics support, refueling operations, dry-docking and ordnance operations. The land consists of approximately 5,100 acres of which 1,196 are developable. Improvements include over 1,000 buildings that cover over 10 million square feet of space. Past shipbuilding and repair activities resulted in releases of contaminants such as heavy metals, volatile organic compounds (VOCs), PCBs, petroleum hydrocarbons and lead oxide into the environment. A Federal Facility Site Remediation Agreement (FFSRA) was signed in FY92. The Base Realignment and Closure Commission of 1993 recommended MINS for closure. The former MINS operationally closed on 1 April 1996 and is currently under the caretakership of Engineering Field Activity West.

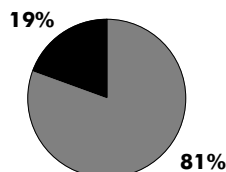
The former MINS is surrounded on the west and south sides by the waters of San Francisco Bay, on the east side by Mare Island Strait and on the north side by marshlands. Adjacent to the northwest boundary are the marshlands of the San Pablo Bay Wildlife Refuge. The City of Vallejo is located across the Mare Island Strait. Groundwater has no beneficial use as a potable water supply. Contaminants have the potential to enter the bay waters or marshlands via surface runoff or the groundwater system

There are 36 existing Installation Restoration (IR) or Group 1 sites. In addition, there are 16 Group 2 and four Group 3 identified Areas of Concern (AOC) to investigate. Group 2 AOC are sites that warrant further investigation as recommended by the respective Preliminary Assessment (PA) and/or Site Investigation (SI) reports. Group 3 AOC were identified through the Environmental Baseline Survey (EBS), meetings with the BRAC Cleanup Team (BCT), and input from the Restoration Advisory Board (RAB) members. Management of IR Sites 1 through 24 are divided into three Operable Units (OUs) based on the type and/or location of the contaminant,

and known information. OU 1 is IR Site 22; OU 2 consists of IR Sites 8, 10, 11, 13, 16, 18, and 23; and OU 3 consists of IR Sites 1-7, 9, 12, 14, 15, 17, 19, 20, 21 and 24.

All sites are currently undergoing a remedial investigation which includes Human Health and Ecological Risk Assessments where appropriate. Accelerated field work has begun on all Group 2 and 3 sites to characterize the nature and extent of any contamination from these sites. Removal Actions are scheduled to complete for Sites 8, 10, 13, 16 and 18 in FY98. Intrusive investigations are planned for the following unexploded ordnance (UXO) areas: Uplands Magazine, South Shore Area, and the Western Magazine Area. These actions are being prepared and will be executed by Shipyard Support, Portsmouth (SSPORTS) Detachment Vallejo (former Shipyard workers). All radiological actions for the former MINS are complete.

Current Status Of Sites



■ Studies Underway	29
■ Cleanups Underway	7
□ Response Complete	0
TOTALS	36

MARE ISLAND NSY RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Mare Island NSY is enclosed by San Francisco Bay waters on the south (Carquinez Strait), east (Mare Island Strait) and west (San Pablo Bay) sides. Technically, it is not an island, but a peninsula attached to the mainland by diked wetlands and marshlands on the north end. The base is hydraulically isolated from the mainland. There are no flowing streams since watershed areas are small and rainfall is insufficient. The west side is mostly wetlands. Approximately 3,800 acres are wetlands, including dredge spoils, ponds and tidal marshlands. The average annual rainfall is 17.41 inches. Groundwater is not used as drinking water; water is purchased from the local municipality. Contaminant migration on the land surface ultimately moves to Mare Island Strait or San Pablo Bay via surface channels, storm drains, or non-channelized flow through the marshlands. Contaminant migration via groundwater flow discharges into Mare Island Strait or San Pablo Bay. The "Bay Mud," which is not readily permeable, overlies most of the only useable aquifer, thus minimizing the possibility of contaminating the aquifer. The Regional Water Quality Control Board (RWQCB) has concurred that all shallow aquifers are unsuitable for use as potable water.



NATURAL RESOURCES - The San Pablo Bay National Wildlife Refuge (11,790 acres of open water and tidal wetlands) lies immediately adjacent to the base at its northern boundary. Ducks, terns, loons, grebes and cormorants depend on this refuge. It is home to the endangered California clapper rail, salt marsh harvest mouse and depleted subspecies of Samuel's song sparrow. There are no known endangered, rare, or threatened plant species on the base. A juvenile dungeness crab nursery is located in San Pablo Bay. The waters south of the former MINS are an important recreational fishing area and migration route for steelhead trout, striped bass, sturgeon, American Shad, and Chinook and Coho salmon.



RISK - Twenty-six of the sites are ranked high relative risk in the DOD Relative Risk Site Evaluation Model. Over half of these sites are contaminated with metals and petroleum products. Slightly less than half are contaminated with the chemical additive PCB. Since the majority of these sites are slated for reuse, the potential exists for human contact. Because of the proximity of San Francisco Bay, contamination of the Bay is possible. The environmental baseline survey was completed in February 1995. Five hundred acres were designated to be uncontaminated according to the guidelines in the Community Environmental Response Facilitation Act (CERFA).

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - The former MINS is not listed on the NPL. The former MINS was evaluated and received a score high enough to be included on the NPL; however, the State of California determined the former MINS should remain under the regulatory oversight of the State of California.



LEGAL AGREEMENTS - A Federal Facility Site Remediation Agreement (FFSRA) was signed in September 1992. A revised schedule for submitting required documents was approved in June 1995. The BRAC Cleanup Team (BCT) and project team members met in FY96 to review the cleanup schedules. As a result, a revised FFSRA was issued in December 1996 and is currently being updated again.



PARTNERING - The BCT negotiated a Memorandum of Understanding (MOU) with the City of Vallejo, the Fish and Wildlife Service and the Navy. The MOU outlined the requirements for the cleanup program and drafted a Habitat Conservation Plan

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A technical review committee (TRC) was formed in FY90 and was converted to a restoration advisory board (RAB) in FY94. The 25-member RAB includes representatives from the Navy, regulatory agencies, and the community. The RAB meetings are held on the fourth Thursday of each month. The meeting venue is the John F. Kennedy (JFK) Library in Vallejo.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in FY92 and updated in FY94. Fact sheets are prepared and display poster boards are provided to keep the local residents informed of cleanup progress. A facility open house for the affected community was held in August 1997.



INFORMATION REPOSITORY - The administrative record and information repository were established in FY90. The repository is located at the JFK Library in downtown Vallejo. Public access to the information is during normal library business hours. A copy of the Administrative Record documents are contained in the Information Repository.

BASE REALIGNMENT AND CLOSURE



BRAC - The Base Realignment and Closure (BRAC) Commission of 1993 recommended closure of the former MINS, relocating the Combat Systems Technical Command to Dam Neck, Virginia. The former MINS closed 1 April 1996 and is currently under EFA West caretakership.



BRAC CLEANUP TEAM - The BCT, formed in October 1993, has accelerated the cleanup process by designating investigation areas and operable units based on geologic and hydrogeologic conditions, physiographic features and environmental characteristics. The BCT also initiated removal actions to address lead contamination.



DOCUMENTS - The BRAC Cleanup Plan (BCP) was completed in FY94, with the second edition completed 21 August 1995. The most recent (third) edition was completed 16 July 1996. An Environmental Baseline Survey was completed in 1994, which designated the off-base housing area (Roosevelt Terrace), and a small amount of open space as clean and suitable for transfer. The remainder of the base property required additional study and remediation as necessary to facilitate transfer.

Environmental Conditions of Property Classification

1	2	3	4	5	6	7
143 acres	0 acres	0 acres	0 acres	0 acres	1,507 acres	3,996 acres



REUSE - An Environmental Baseline Survey was completed in 1994, which designated the off-base housing area (Roosevelt Terrace), and a small amount of open space as clean and suitable for transfer. The remainder of the base property required additional study and remediation as necessary to facilitate transfer. The Local redevelopment authority is the City of Vallejo. The City empowered a broad-based Reuse planning committee to develop a Reuse Plan for Mare Island in August of 1993. This committee prepared the Mare Island Reuse Plan that was approved by the Vallejo City Council and was forwarded to the Secretary of the Navy in July of 1994. The Reuse Planning Committee was disbanded following the approval of the plan, and the City of Vallejo has turned over the planning and execution of the reuse plan to City staff located within their Economic Development Department.

MARE ISLAND NSY RELEVANT ISSUES



FAST-TRACK INITIATIVES - The activity is utilizing a strategic accelerated cleanup model to expedite the cleanup process. Former MINS personnel are performing some of the removal actions. The BCT has accelerated the cleanup process based on physical and environmental characteristics. This reduced the amount of RDs and RAs. Environmental cleanup of Mare Island is being pursued in a manner to minimize Navy costs and expedite property transfer. Historically, cleanup has been pursued with property, which was not identified as "CERFA Clean," being addressed through the normal CERCLA processes. In most cases, this process has proven to be time consuming and excessively costly. Once sufficient characterization has been completed, the following strategies are being

evaluated and adopted on a case-by-case basis to expedite transfer and cut costs: Use of removal actions. This strategy entails minimizing the study phase of remediation by conducting a removal action where this action will likely correct the problem.

Use of less complex/bureaucratic procedures. Examples include remediation utilizing UST procedures vs. typical CERCLA processes, and performing site reclassification under CERFA vice CERCLA subsequent to the original Environmental Baseline Survey,

Section 334 transfer. This authority will be pursued where appropriate.

Cleanup Standard. Cleanup accomplished consistent with "proposed reuse" vs. "residential use."

HISTORICAL PROGRESS

FY83

Sites 1-15 - Completed a Preliminary Assessment (PA).

FY88

Site 5 - Completed a Site Inspection (SI) phase. A Remedial Investigation/ Feasibility Study (RI/FS) underway.

Site 22 - An RI/FS underway.

Sites 1, 2, 6-8, 10, 13, 16, 18, 20 and 24 - RI/FS underway.

Sites 4 and 11 - RI/FS underway.

Site 23 - RI/FS underway.

Sites 3, 9, 12, 14, 15, 19 and 21 - RI/FS underway.

FY90

UST-18 - Completed a PA.

FY91

Basewide - Completed Phase I Remedial Investigations

Sites 1-3, 7, 9, 10-15 and 20 - Completed an SI.

Sites 17-19 and 21-23 - Completed a PA and an SI.

FY93

Site 8 - Completed an IRA (waste removal - soil with heavy metals).

USTs 1-6 - Completed an IRA (waste removal - drums, tanks, bulk containers with petroleum products).

FY94

Site 7 - Two removal actions were begun. One to remove soil containing acids, sludge and heavy metals which was to be completed in FY96. The second was to remove drums, tanks and bulk containers containing acids, petroleum product sludge and heavy metals with completion expected in FY96.

Site 20 - Two removal actions were started. One was to remove soils contaminated with acid, petroleum products, the chemical additive PCB and heavy metals with completion expected in FY96. The second action removed drums, tanks and bulk containers containing acid, petroleum products, the chemical additive PCB and heavy metals with completion expected in FY95.

Site 22 - A removal action was completed.

Site 24 - A removal action was completed to remove soils contaminated with heavy metals.

USTs 1-7 - Completed a PA.

FY95

Site 3 - A removal action is underway to treat groundwater to remove petroleum floating free product. It is expected to be completed in FY00.

Site 7 - A removal action is underway to remove acids, petroleum products and heavy metals from the groundwater. It should be completed in FY99.

Site 13 - A removal action is underway to remove soils contaminated with the chemical additive PCB and will be done sometime in FY97.

Site 15 - A removal action is underway to remove soils with petroleum products, solvents and heavy metals with completion in FY96.

Site 20 - A removal action is underway to remove acids, petroleum products and heavy metals from the groundwater. This will be completed in FY99.

USTs 1-7 and 18 - A Corrective Action Plan is underway. Expected completion is FY98.

FY96

Site 1 - Progressed with a presumptive remedy (landfill cap) for the old facility landfill.

Site 3 - Continued a time-critical removal action to remove petroleum floating free-product.

Site 5 - An ordnance removal action for this site was initiated.

Sites 7, 15, 19 and 20 - Completed removal actions.

Site 22 - Progressing with a No Further Action ROD at this site.

Site 26 - Completed PA/SI.

Ordnance sites - An ordnance magnetometer search was completed for potential ordnance.

Site 28 (DRMO Scrap yard) - Completed the radiological removal actions.

PROGRESS DURING FISCAL YEAR 1997

FY97

Site 5 - Removal action continuing

Site 8 - Removal action initiated

Site 13 - Removal action initiated

Site 11 - Innovative Technology Demonstration project completed successfully

Basewide - Ecological Risk Assessment started 3 months ahead of scheduled. 85% of PCB compliance actions complete, and completed all radiological actions

OU 1 - Final RI prepared

OU 2 - Draft Final RI prepared

OU 3 - Draft RI prepared

Area E - Uplands Magazine area, intrusive investigations for UXO completed

Areas G and I - South Shore Area (Area G) for Western Aboveground Magazine (Area I) intrusive investigations for UXO started.

Area A - Began the accelerated investigation for this area. Highest reuse priority

Group 2/3 - field sampling began

MARE ISLAND NSY PLANS FOR FISCAL YEARS 1998 AND 1999

FY98 - FY99

OUs 1, 2 and 3 - Complete RI Reports including Human Health and Ecological Risk Assessments, complete landfill feasibility study, start landfill cap design

USTs - Complete removals or investigations

Area E - Transfer to the City of Vallejo

Sites 4, 5, 8 and 16 - Complete removal actions and recommend no further action required

Site 17 - Complete removal action at

Basewide - Complete PCB program removals or investigations; continue UXO investigations; institute long term groundwater monitoring plan; transfer Roosevelt Terrace to the City of Vallejo; and reclassify CERFA property and transfer where appropriate

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	24		2					
RI / FS				22	3	3		
RD		2	4	1	3	14		
RAC					2	7	8	
RAO							3	7
IRA	5(6)	10(10)	7(8)	7(8)	3(3)			1(2)
RC				10	1	4	6	7
Cumulative % RC	0%	0%	0%	36%	39%	54%	75%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	6							
CAP		7	1					
DES				8				
IMP					6	2		
IMO						6	2	
IRA	6(6)							
RC						6	2	
Cumulative % RC	0%	0%	0%	0%	0%	75%	100%	100%

MIRAMAR NAVAL AIR STATION

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CINCPACFLT
 Size: 23,413 Acres
 Funding to Date: \$6,090,000
 Estimated Funding to Complete: \$6,152,000



Base Mission: Provides facilities, services and materials to support operations of aviation activities

Contaminants: Heavy metals, POLs, volatile organic compounds

Number of Sites:

CERCLA: 14
 RCRA Corrective Action: 1
 RCRA UST: 1
 Total Sites: 16

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 1
 Medium: 4 Not Required: 10
 Low: 1

Sites Response Complete: 10	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	9							3
RI / FS	1				1			1
RD								2
RAC	4							2
RAO								
IRA	5(5)		1(1)					2(2)
RC	9				1			4
Cumulative % RC	64%	64%	64%	64%	71%	71%	71%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA		1						
RFI / CMS								
DES								
CMI								
CMO								
IRA								
RC		1						
Cumulative % RC	0%	100%	100%	100%	100%	100%	100%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								1
CAP								
DES								
IMP								
IMO								
IRA		1(2)						
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

MOFFETT FIELD NAVAL AIR STATION

MOFFETT FIELD, CALIFORNIA

Engineering Field Division/Activity:

Major Claimant: TRANSFERRED

Size: 3,700 Acres

Funding to Date: \$62,052,000

Estimated Funding to Complete: \$65,885,000



Base Mission: Closed and transferred. Previously provided support for antisubmarine warfare training and patrol squads; served as headquarters for Commander Patrol Wings of Pacific Fleet

Contaminants: Volatile and semi-volatile organic compounds, POLs, heavy metals, PCBs, battery acid, benzene, toluene, ethylbenzene, xylene, polynuclear aromatic hydrocarbons

Number of Sites:

CERCLA: 19

RCRA Corrective Action: 0

RCRA UST: 15

Total Sites: 34

Relative Risk Ranking of Sites:

High: 14 Not Evaluated: 0

Medium: 5 Not Required: 11

Low: 4

NPL

BRAC II

Sites Response Complete: 11

EXECUTIVE SUMMARY

Naval Air Station Moffett Field (Moffett Field) is located 35 miles south of San Francisco, California. Moffett Field was commissioned by the Navy in 1933 to support the West Coast dirigibles (blimps) of the lighter-than-air program. Since 1962, the Navy used the station to support anti-submarine warfare training and patrol squadrons. Moffett was slated for closure by the Base Closure and Realignment Commission (BRAC) of 1991. Military operations ceased in July 1994 and Moffett Field was transferred to the National Aeronautics and Space Administration (NASA) which currently operates the Ames Research Center at Moffett Field, the Navy remains responsible for cleanup of Navy-related contamination. In April 1994, an Environmental Baseline Survey (EBS) was completed that identified only 7 of the 2,200 acres as Community Environmental Response Facilitation Act (CERFA) clean. Regulatory agencies have concurred on the CERFA clean acreage. Wastes were generated at Moffett Field by aircraft maintenance activities, squadron operations, fuel management, fire fighter training, and other general facility operations. Wastes were disposed of in unlined ponds, landfills, and onto the ground. Leaks from underground storage tanks (USTs) and fuel spills have contributed to environmental problems. Site types include landfills, USTs, a burn pit, ditches, holding ponds, French drains, maintenance areas, and spill sites. The most significant restoration activities involve the investigation and cleanup of four inactive landfills; a groundwater contamination plume under the eastern portion of the facility; UST and fuel handling facilities; and the Navy's contribution to a regional groundwater contamination plume under the western portion of the facility. The primary contaminants of concern are: chemical additive PCBs, petroleum products, the pesticide DDT, chlorinated cleaning solvents, and heavy metals. The base was listed on the National Priorities List (NPL) in 1987. A Federal Facility Agreement (FFA) was signed in September 1990.

Moffett Field is located next to the San Francisco Bay, a highly sensitive ecological area. State and local governments, and the public have expressed strong interest and have provided significant comments on cleanup activities at Moffett Field. Landfills located in sensitive ecological and recreation areas,

contaminated potential drinking water sources, and the desire for a reuse plan that includes residential, recreational, and industrial areas have resulted in newspaper articles, news stories, public meetings, and intensive regulatory agency involvement.

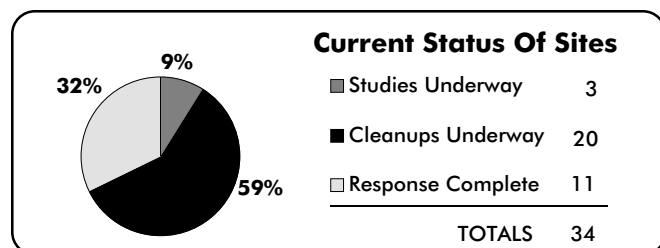
A Technical Review Committee (TRC) was converted to a Restoration Advisory Board (RAB) in October 1994. The RAB meets monthly. Fact sheets are distributed regularly and public meetings with community members are also held. A Community Relations Plan was completed in October 1988 and an Information Repository has been established at the local community library.

In FY97, remedial actions (RAs) were initiated or completed at four sites. Site 2 landfill was excavated and consolidated into the larger Site 1 landfill. Site 1 landfill has been capped. Constructions of two pump and treat systems for Sites 26 and 28 have been initiated. The landfill excavation and cap will prevent leachate generation. The pump and treat systems at Sites 26 and 28 will prevent migration of the plumes into the San Francisco Bay.

The Remedial Investigation/Feasibility Study (RI/FS) phase will be completed for all CERCLA sites in FY98. In FY98, completion of Sites 26 and 28 pump and treat systems is expected. Operation and maintenance (OandM) of Sites 1, 2, 26, and 28 is expected to continue. In addition, a feasibility study (FS) for Site 22 landfill will be expedited to speed up cleanup. FS for Site 27, the ecologically sensitive sites, was complete in FY97.

Moffett is currently re-evaluating petroleum sites under the new low risk California risk based corrective action (RBCA) evaluation criteria to possibly close out Sites 5, 8, 9, 12, 14, 15, 16, 17, 19, and 20 without any further action. In addition, the "IRON CURTAIN" innovative technology is being tested. This technology has very low Operation and Maintenance (OandM) costs and detoxifies the ground water of chlorinated solvents. The BRAC Cleanup Team (BCT) has expedited many cleanup actions at Moffett Field. Tank and sump removals, groundwater treatment, and soil treatment are the primary areas of restoration at Moffett Field. To date, the Navy has removed 106 tanks and sumps. All remaining tanks were transferred with the base to NASA.

Remediation of the RCRA USTs is ongoing. The Site Assessments (SA) are complete and there are several projects scheduled for FY98, but the majority of the remediation will occur in FY02 or later due to funding limitations. All the USTs are currently expected to achieve Response Complete (RC) in FY02 or later.



MOFFETT FIELD NAS RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Moffett Field is located adjacent to the San Francisco Bay. The majority of groundwater under Moffett Field is considered a potential drinking water source. However, concentrations of naturally occurring metals in groundwater exceed acceptable state and federal risk levels. A plume of volatile organic compound (VOC) contamination in the groundwater from a site located near Moffett Field, known as the Middlefield-Ellis-Whisman (MEW) site, has migrated under the western portion of the facility. Contamination from Moffett Field has commingled with the regional MEW plume. There is also a VOC groundwater contamination plume under the eastern portion of the facility. Additionally, several small petroleum-contaminated groundwater plumes exist on both the eastern and western portions of the facility. Complex geology, including sand channels and silt and clay deposits, complicate cleanup activities.



NATURAL RESOURCES - Threatened or endangered species known or potentially occurring at Moffett Field include the California Brown Pelican, American Peregrine Falcon, Black-Shouldered Kite, California Clapper Rail, Western Snowy Plover, California Least Tern, Salt Harvest Mouse, and Marsh Gum Plant.



RISK - A phased Site-Wide Ecological Assessment (SWEA) is being conducted in accordance with EPA and state guidelines at Moffett Field. Phase I identified chemicals of potential concern, receptors, and habitats. It was determined that the current ecological receptors in Operable Unit (OU) 5 groundwater areas do not appear to be at risk from OU 5 contaminants. Phase II (being finalized) characterizes ecological effects and risks to receptors.

Under the Department of Defense (DOD) Relative Risk Site Evaluation Model, 21 sites at Moffett Field received a high relative risk ranking primarily due to VOCs in groundwater, soil, and sediments. Potential human receptors include current and future occupational and recreational users, and future residential occupants. The most significant risk reduction activities involve the investigation and cleanup of four inactive landfills; a groundwater contamination plume under the eastern portion of the facility; Underground Storage Tank (UST) and fuel handling facilities; and the Navy's contribution to a regional, multiple responsible party, groundwater contamination plume under the western portion of the facility. Risk reduction actions include construction of drainage controls and a groundwater collection trench, a monitoring well system, construction of multi-layered caps and gas vents, removal of USTs, a bioventing treatment system, a pilot scale Soil Vapor Extraction (SVE) system, construction of a Recirculating In-Situ Treatment (RIST) system, soil excavation and treatment, groundwater treatment, and Operation and Maintenance (OandM) of installed remedies.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - Moffett Field was listed on the National Priorities List (NPL) in July 1987 with a Hazard Ranking Score (HRS) of 32.90.



LEGAL AGREEMENTS - The Navy and regulatory agencies signed a Federal Facility Agreement (FFA) in September 1990. Under the FFA the Navy agreed to undertake, seek funding, implement, and report on investigations and cleanup actions for the following current OUs and sites at Moffett Field:

OU 1 - Sites 1 and 2 (landfills)
OU 2 - (East) Sites 3, 4, 6, 7, 11, and 13, and the eastern portion of Site 10 (soils)
OU 2 - (West) Sites 8, 16, 17, and 18, and the western portion of Site 10 (soils)
OU 5 - East Side Aquifers, Site 26
OU 5 - West Side Aquifers, Site 28
OU 6 - Wetlands, Sites 25 and 27
Petroleum sites - Sites 5, 9, 12, 14, 15 and 19
Station-wide - Sites 20-24

The Navy was identified as a principle responsible party to the MEW regional groundwater plume, but was not a signatory to the MEW Record of

Decision (ROD) signed in May 1989. The Navy has agreed to follow provisions of the MEW ROD for the regional groundwater plume and at sites that overlie the plume (both on the western portion of the facility). No Further Action (NFA) was agreed to by the regulatory agencies for OU 2 - East, Sites 16 and 17 (OU 2-West), and all of Site 10. These sites fall under the MEW ROD.



PARTNERING - In addition to monthly RPM meetings, the BCT meets quarterly for "off-site" "long-term planning meetings" to frankly discuss overall program issues and air concerns. These meetings have built such a high trust between the BCT members that the cleanup decisions are made much faster and cheaper.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - The Technical Review Committee (TRC), formed in FY89, was converted to a Restoration Advisory Board (RAB) in FY94. Many of the former TRC members are now in the RAB. The RAB now has about 30 members who meet bi-monthly to discuss cleanup program documents and issues. The RAB has many subcommittees.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was prepared in FY89 to provide guidance for community relations activities during the Remedial Investigation/Feasibility Study (RI/FS) process at Moffett Field. Public meetings have been held. Fact sheets and proposed plans have also been distributed to the public.



INFORMATION REPOSITORY - An Information Repository has been established at the Mountain View City Library. A copy of the Administrative Record documents is contained in the Information Repository.

BASE REALIGNMENT AND CLOSURE



BRAC - The Base Realignment and Closure (BRAC) Commission of 1991 recommended NAS Moffett Field for closure. Ownership of Moffett Field was officially transferred in July 1994 to the National Aeronautics and Space Administration (NASA). Naval Air (NAVAIR) Manor, a former off base officer's housing complex, will be transferred in FY97. The cleanup of contamination, as a result of Navy's past practices, remains the Navy's responsibility.



BRAC CLEANUP TEAM - The Moffett Field BRAC Cleanup Team (BCT) has been established. The BCT includes representatives of the EPA and California EPA.



DOCUMENTS - The first edition of the BRAC Cleanup Plan (BCP) was issued on 29 April 1994. The second edition of the BCP was issued on 28 February 1995. In FY96, an environmental business plan, which is an abbreviated version of the BCP was issued. Revisions are expected annually.

Environmental Conditions of Property Classification

1	2	3	4	5	6	7
2,230 acres	69 acres	166 acres	49 acres	93 acres	409 acres	81 acres



LEASE/TRANSFER - A Finding of Suitability for Transfer (FOST) was completed for NAVAIR Manor in FY96.



REUSE - Moffett Field was transferred to NASA in July 1994. NAVAIR Manor was transferred in FY97.



FAST TRACK INITIATIVES - Other fast-track initiatives include negotiating alternate petroleum cleanup levels that meet site beneficial uses and risk scenarios and coordinating cleanup designs during investigations. In addition, the BCT is working on incorporating the updated petroleum regulations toward a fast-track ROD for petroleum sites.

MOFFETT FIELD NAS HISTORICAL PROGRESS

FY84

Sites 1-13 - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA), was completed for both the NAS Moffett Field and Naval Auxiliary Landing Field (NALF) Crows Landing. A total of 13 potentially contaminated sites were identified: Sites 1-9 at NAS Moffett Field and Sites 10-13 at NALF Crows Landing. Sites 1-9 were recommended for further investigation. NALF Crows Landing is not a contiguous part of NAS Moffett Field and is not addressed in this narrative.

FY86

Sites 1-10 - A Confirmation Study (CS) (equivalent to a Site Inspection (SI)) was completed for Sites 1-9 and for a new Site 10 (Chase Park Area).

FY90

Site 9 - An Interim Remedial Action (IRA) that involved the removal of tanks was completed.

Sites 5, 12 and 15 - These sites were identified in the IAS under CERCLA regulations. Since contamination consisted solely of petroleum products, these sites were switched to the Underground Storage Tank (UST) program. Site 5 had a PA and a SI completed.

Sites 11-19 - The Department of the Navy (DON) identified Sites 11-19 at NAS Moffett Field. These new sites are unrelated to the NALF Crows Landing Sites 11-13 identified in the IAS. No PA or SI was conducted for these new sites; however, based on sampling data from other sources, all sites were moved into the ongoing Remedial Investigation/Feasibility Study (RI/FS).

Site 20 (Wetland Areas) OU 6 - This new site was identified and placed into the ongoing RI/FS. This site has outfall areas of groundwater and surface water that lead to marshlands, wetlands, storm water retention ponds, and a slough. The contaminants of concern (solvents, fuels, and the chemical additive PCB) probably came from many sites on the installation.

UST 2 - Initial Site Characterization (ISC) was completed and all 14 tanks were removed.

UST 3 - This UST site consists of six tanks at various locations. An ISC was completed.

UST 6 - This UST site consists of two tanks at the Shenadoah Housing Unit. An ISC was completed.

FY91

Sites 16-18 - Three IRAs involving groundwater remediation was completed. **UST 5** - Four leaking tanks at the NEX Gas Station were removed. Soil and groundwater sampling and contaminated soil and groundwater remediation is planned.

FY92

Site 19 - This site was originally identified during the RI/FS phase under CERCLA and was transferred to the UST program.

Sites 21-23 - These three sites were identified during Stage I of a Remedial Investigation (RI). A SI was completed. Potential contaminants include spilled solvents at Site 21, surface disposal of solvents at Site 22, and the chemical additive PCB and paint in the landfill at Site 23.

All Sites - A PA investigation was underway at all buildings at the installation that were likely to have generated or handled hazardous waste.

FY93

OUs 1 and 5 - The RI was completed.

OU 2 (Sites 8 and 14-18) - The RI was completed, following informal dispute resolution, and the Remedial Design (RD) phase was started.

FY94

Site 12 - A removal action was completed that involved the excavation and treatment of petroleum-contaminated soil using catalytic oxidation.

Site 18 - An IRA to remove contaminated soil was completed. Recommendations for subsequent Remedial Actions (RAs) will be incorporated into the regular phases of the Installation Restoration Program (IRP).

Site 20 (Wetland Areas) OU 6 - The RI phase was completed.

FY95

Basewide - Completed Phase I Ecological Assessment.

Sites 1 and 2 - Completed the Feasibility Study (FS) phase.

Sites 3, 4, 6, 7, 11, 13 and portion of 10 - Completed no action Record of Decision (ROD).

Site 5 - Designed and constructed bioventing pilot test. Remove inactive USTs.

Site 9 - Designed and constructed Soil Vapor Extraction (SVE) pilot test.

Site 14 - Designed and constructed Recirculating In-Situ Treatment (RIST) pilot test at two USTs.

Site 18 - Soil excavation and treatment RA was completed.

Sites 21-23 - A RI was completed.

Site 24 - A SI was completed.

OU 6 (Wetlands) - A RI was completed.

OU 5 (East Side Aquifers) - An FS was completed.

FY96

Basewide - Continued Phase II Ecological Assessment, completion delayed to FY97 due to discussions between the Navy and regulators as to the level of Ecological Assessment necessary.

Site 2 - Completed RD for constructing multi-layered caps and gas vents.

Site 5 - Bioventing pilot test and full scale design was completed. Negotiation for No Further Action (NFA) begun. Removal of inactive USTs was completed.

Site 9 - Negotiation for NFA began.

Site 14 - Closure report for two USTs completed and a RIST pilot test at remaining two USTs was installed. Negotiation for NFA is in progress.

Completed RA.

Site 15 - Negotiation for NFA began.

Site 18 - Completed RA and reached RC.

Sites 21-23 - An FS is in progress, completion delayed to FY97 due to request for extension from both the EPA and the RAB.

Investigation of fuel transfer pier was completed. Negotiation for NFA is in progress.

OU 6 (Wetlands) - An FS is in progress, completion delayed to FY97 due to additional ecological assessment issues which require resolution prior to finalizing remedy alternative section of FS.

OU 5 (East Side Aquifers) - A ROD was signed 6/28/1996 and the groundwater extraction and treatment is in the RD phase.

Sites 26 and 27 - Completed RI/FS

West Side Aquifers - Pilot scale permeable reaction cell was installed with successful preliminary results and the groundwater extraction and treatment system design was completed.

Site 28 - Completed RD.

USTs 2 and 3 - Completed Site Assessment (SA) and IRA.

Basewide - Issued an Environmental Business Plan, and completed FOST for NAVAIR Manor.

MOFFETT FIELD NAS PROGRESS DURING FISCAL YEAR 1997

FY97

Basewide - Completed Phase II Ecological Assessment.
 Sites 1 and 2 - OU1 ROD was signed.
 Site 1 - Completed RD for landfill cap. Initiated FRA, landfill cap.
 Site 2 - Initiated FRA construction.
 Site 5, 15, 19, 20, 21 and 24 - Negotiation for NFA continued.
 Site 9 - Initiated IRA. Negotiation for NFA continued.
 Site 14 - RIST system OandM continued. Negotiation for NFA continued.

Sites 22, 23 and 25 - The RI phase completed. Initiated FS phase.
 Site 25 - Achieved RC.
 Site 27 - FS revised.
 OU 5 - Began construction of RA, groundwater extraction and treatment.
 OU 6 - FS revised.
 West Side Aquifers - Continued pilot scale permeable reaction cell testing.
 Construction for groundwater extraction and treatment system initiated.
 UST 6 and 7 - Negotiation for NFA continued.
 Basewide - Transferred NAVAIR manor.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Basewide - ROD planned for completion.
 Sites 1, 2 and 26 - Complete RAs. Initiate OandM.
 Sites 5 and 9 - Negotiate for NFA.
 Site 14 - RIST treatment will continue or there will be NFA.
 Sites 12, 15, 19, 20 and 21 - Initiate Corrective Action Plans (CAPs) or acquire NFAs.
 Sites 22 and 23 - Complete FS. Initiate ROD and RDs.
 Site 24 - In-situ treatment will continue or there will be NFA.
 OU 5 - Complete groundwater extraction and treatment. Initiate OandM.
 OU 6 - Complete Revised FS. Initiate ROD phase.
 West Side Aquifers - Pilot scale permeable reaction cell testing. Complete groundwater extraction and treatment system. Initiate OandM.
 UST 6 and 7 - Complete Implementation (IMP) phase or acquire NFAs.

FY99

Basewide - Initiate RD.
 Sites 1, 2, 26 and OU 5 - Continue OandM.
 Site 5, 9, 12, 15, 19, 20, 21 and 24 - Acquire NFA or await funding for CAP.
 Site 14 - RIST treatment will continue or there will be NFA.
 Sites 22 and 23 - Complete RODs and RDs.
 OU 6 - Complete ROD phase. Initiate RD.
 West Side Aquifers - Continue pilot scale permeable reaction cell testing. Continue OandM.
 UST 6 and 7 - Acquire NFAs or await funding for CAPs.

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	16							
RI / FS	17		2					
RD	5	5						
RAC	3	2	1		3	1		
RAO								6
IRA	2(2)							
RC	11		1		1			6
Cumulative % RC	58%	58%	63%	63%	68%	68%	68%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	12							
CAP	11	1						1
DES	3	2	1		6	2		
IMP			1		6	7		1
IMO							1	7
IRA	8(9)	2(2)						
RC					2	5	1	7
Cumulative % RC	0%	0%	0%	0%	13%	47%	53%	100%

MONTEREY NAVAL POST GRADUATE SCHOOL

MONTEREY, CALIFORNIA

Engineering Field Division/Activity: EFAWEST

Major Claimant: CNO

Size: 619 Acres

Funding to Date: \$1,390,000

Estimated Funding to Complete: \$0



Base Mission: Provides advanced technical education services

Contaminants: POLs, pesticides, solvents

Number of Sites:

CERCLA: 2

RCRA Corrective Action: 0

RCRA UST: 1

Total Sites: 3

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 1

Medium: 0 Not Required: 2

Low: 0

Sites Response Complete: 2	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	2							
RI / FS	1							
RD	1							
RAC	1							
RAO								
IRA	1(1)							
RC	2							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	1							
CAP			1					
DES			1					
IMP			1					
IMO								
IRA								
RC			1					
Cumulative % RC	0%	0%	100%	100%	100%	100%	100%	100%

NORTH ISLAND NAVAL AIR STATION SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
Major Claimant: CINCPACFLT
Size: 2,520 Acres
Funding to Date: \$60,422,000
Estimated Funding to Complete: \$99,413,000



Base Mission: Maintains and operates facilities and provides services and materials to support operations of aviation activities

Contaminants: Heavy metals (arsenic, chromium, copper, lead), PCBs, volatile and semi-volatile organic compounds

Number of Sites:

CERCLA: 1
RCRA Corrective Action: 17
RCRA UST: 3
Total Sites: 22

Relative Risk Ranking of Sites:

High: 10 Not Evaluated: 1
Medium: 5 Not Required: 2
Low: 4

Sites Response Complete: 2	

EXECUTIVE SUMMARY

Naval Air Station (NAS) North Island is located at the northern end of the peninsula that forms the San Diego Bay and borders the city of Coronado. NAS North Island was established in 1917 as a flight school on the north side of the island and co-existed on North Island with the U.S. Army's Rockwell Field (located on the south side of the island). The Navy took full control of the island in 1939. In the late 1930s and in the 1940s the island was expanded through a program of dredge and fill until it took the form it has today. NAS North Island is home to two major aircraft carriers, the USS Kitty Hawk and the USS Constellation, as well as the Third Fleet flagship USS Coronado. The base is home to the Navy's only deep submergence vehicles which are used in a variety of research projects, and rescue and recovery operations. Waste generation operations at NAS North Island that contributed to contaminated sites on the facility center around maintenance and repair of aircraft. In the past, liquid wastes were disposed of in the storm drain system which emptied into San Diego Bay and contributed to heavy metal contamination of near shore bay sediments. Other primary sites of concern include a storage site where transformers containing oils with the chemical additive PCB leaked, and a marsh, surface disposal areas, pits, and landfills where liquid and solid wastes were disposed. A Federal Facilities Compliance Agreement and a Cleanup and Abatement Order were issued in FY88 for the Industrial Waste Treatment Beds (Site 11). NAS North Island was issued a RCRA Hazardous Waste Facility Permit in FY89 and is expecting the permit to be reissued in FY98. As a result of the permit, all CERCLA sites must now comply with both RCRA and CERCLA requirements.

NAS North Island is bordered on the north and west by San Diego Bay and on the south by the Pacific Ocean. The east side of the base borders the City of Coronado which is predominantly residential. Presently, most of the surface drainage is controlled through storm drainage as the majority of the island is paved. The local community is concerned with the potential for contaminated groundwater to migrate toward the community and expressed a desire to see a groundwater monitoring program established along the

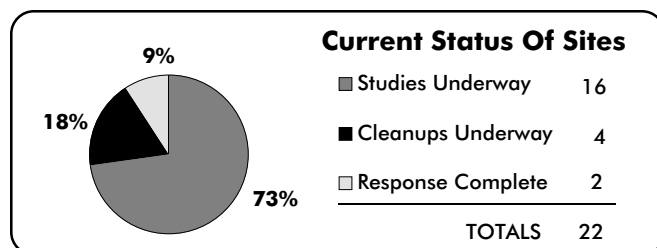
common boundary. There is minimal potential for contamination in the groundwater to migrate off-base east toward the city; however, contaminated groundwater is flowing west into San Diego Bay.

A Restoration Advisory Board (RAB) was established in FY94. The RAB consists of approximately 15 community members and a like number of Navy personnel. The RAB meets on a monthly basis. A Community Relations Plan (CRP) was issued in November 1991 and a second CRP was completed in June 95. Two information repositories, one at the base library and the other at the Coronado Public Library were established in FY92. The base repository was closed in October 1997.

Currently, the majority of the sites are in the RCRA Facility Investigation (RFI) or Corrective Measures Study (CMS) phase.

RFIs will be completed at 15 sites and CMSs at 5 sites by the end of FY99. A final cleanup action is expected for approximately two-thirds of the sites. Six sites will be closed out at the RFI phase without need for a CMS.

NAS North Island is one of two installations in the Navy Environmental Leadership Program (NELP). The objective of NELP is to demonstrate innovative cleanup technologies and to help export successful technologies to other naval facilities. In addition, the EPA Superfund Innovative Technology Evaluation (SITE) Program is being used to do treatability studies at NAS North Island. The NELP and the SITE program have similar goals in terms of generating reliable performance and cost information on the technologies for use in evaluating cleanup alternatives for similarly contaminated sites.



NORTH ISLAND NAS RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - NAS North Island is bordered on the north and west by San Diego Bay and on the south by the Pacific Ocean. Due to the general lack of relief, and the relative small size of the island, there is no pronounced surface drainage pattern. Two sloughs along the south coastline are the only identifiable natural surface drainages on the island. Presently, most of the surface drainage is controlled through storm drainage as the majority of the island is paved. Due to a slight gradient and minimal groundwater movement, minor measurable migration of contaminants from waste disposal sites has been detected. Almost all of North Island is covered with soils with a relatively low permeability. In the past, fresh groundwater was reported to emanate from springs near the southern shore of North Island. Past data indicates the existence of a 60-foot thick aquifer. When the majority of North Island was paved, and the runoff directed to the sea through storm sewers, recharge to the water table was reduced. Since that time, the fresh water has been displaced by intruding sea water. Potable water supply for North Island has been piped in from San Diego since the early 1900s.



NATURAL RESOURCES - The San Diego Bay is a major spawning area for ocean fishes and an integral element in the interconnected food web of the adjacent ocean waters. The bay is also used for numerous recreational activities such as power boating, sailing, water skiing, fishing, swimming, clamming, and wading. Numerous species of marine and shore birds frequent the shoreline and some inland areas of North Island. Most of the nesting birds and a large population of black-tailed jackrabbits inhabit the unpaved and relatively undisturbed areas near runways and along the shoreline. Over 15 bird species reportedly nest at NAS North Island including significant populations of black crown night heron, burrowing owl, western gull, and the endangered California least tern. The snowy plover, listed as rare, also inhabits the station.



RISK - Baseline Human Health Risk Assessments and Ecological Risk Assessments are being conducted on a site by site basis as part of the Remedial Investigation/Feasibility Study. Under the DOD Relative Risk Site Evaluation Model ten sites were ranked as high relative risk. The high ranking was due to contaminated soil or sediments for seven of the sites and contaminated groundwater for four of the sites.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - NAS North Island is currently not listed or proposed for listing on the National Priorities List (NPL).



LEGAL AGREEMENTS - In December 1989, a RCRA Hazardous Waste Facility permit was issued to NAS North Island. To expedite the cleanup process, the Department of the Navy and California EPA negotiated language into the installation's RCRA permit to allow the Department of the Navy latitude in choosing CERCLA or RCRA to address the contaminated sites. The permit specifies that the Department of the Navy must meet RCRA Corrective Action requirements; however, the Navy may submit information developed under the Installation Restoration Program (IRP) provided the IRP information clearly indicates how the RCRA requirements are met. As a result of the RCRA permit, eleven of the 12 CERCLA sites have been transferred and will be tracked as RCRA

Corrective Actions. However, the Defense Environmental Restoration Program (DERP) requires all DOD facilities to comply with CERCLA. In order to meet both regulatory requirements, one document is being prepared for each phase of work that meets the requirements of both programs.



PARTNERING - Two team-building sessions have been held with regulators: a two-day session in 1991 and a two day session in 1993.

NAS North Island is one of two installations in the Navy Environmental Leadership Program (NELP) that was initiated in May 1993. The other NELP installation is Mayport NS. This program is designed to "showcase" an activity for total environmental management through the demonstration of new and innovative technologies and management techniques to achieve and maintain environmental compliance and facilitate restoration. A NAS North Island NELP Team was formed in June 1993 and consists of personnel from the activity, Naval Facilities Engineering Field Division Southwest, regulators, and a NELP contractor. The Team has developed a Management Action Plan (MAP) that is used as an active tool to document the status of all environmental programs at the installation and to provide direction for future actions required to maintain regulatory compliance. The draft MAP was completed in February 1994, the MAP was revised in March 1996. In addition, the Team is pursuing innovative cleanup technologies for the existing sites. The NELP contractor has provided an initial screening of new technologies specific to NAS North Island's sites. In addition, the EPA Superfund Innovative Technology Evaluation (SITE) program is being used to do treatability studies on removing the chemical additive PCB and groundwater remediation technologies. The NELP has brought two EPA SITE Technologies to North Island and is working on six others (some pilot studies and demonstrations have been conducted). Two bioremediation technology demonstrations were terminated in January 1997 after very long delays in permitting negotiations.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - The Technical Review Committee (TRC) was formed in November 1990. The TRC was converted to a Restoration Advisory Board (RAB) in 1994. The RAB consists of approximately 15 community members and a like number of military-related personnel. The RAB functions well and participation is active. The RAB has been active in selection of technologies. In one instance the RAB objected to the selected technology and was instrumental in selecting an alternate technology which is now being implemented. NAS North Island has also been designated by the Chief of Naval Operations to be a pilot facility for RABs and to prototype a facility specific Pollution Prevention Plan.



COMMUNITY RELATIONS PLAN - The Community Relations Plan (CRP) was completed in November 1991 and rewritten in June 1995. Several Fact Sheets have been released each year.



INFORMATION REPOSITORY - Two Information Repositories, one at the base library and the other at the Coronado Public Library, were established and two public meetings were held in February 1992. Information from the Administrative Record was placed in the information repositories for public access. The base closed its Information Repository in October 1997.

HISTORICAL PROGRESS

FY83

Sites 1-12 - Twelve potentially contaminated sites were identified during the Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA), completed in September 1983.

FY85

Sites 1, 6, 9 and 10 - A Verification Study, equivalent to a Site Inspection (SI), was completed in March 1985. The SI found elevated levels of cadmium, copper, and lead at the Shoreside Sediments (Site 1); the chemical additive PCB in soil at the Heritage Park Public Works Salvage Yard (Site 6);

NORTH ISLAND NAS HISTORICAL PROGRESS

organic halide contamination in soil at the Chemical Works Disposal Area (Site 9); and heavy metals in soil at the Defense Property Disposal Area (Site 10).

FY88

Site 11 - A Federal Facilities Compliance Agreement (FFCA) was issued in 1988, and a Cleanup and Abatement Order was issued in June 1988, for the Industrial Waste Treatment Beds (Site 11). The Site Characterization Study (SCS) for Site 11 began in December 1988 and was completed in January 1995. A Hydrogeologic Assessment Report, required under the California Toxic Pits Cleanup Act was completed in June 1988 and reported volatile organic compounds, cyanide, and metals contamination in soil.

FY89

SWMU 1002 - A RCRA Facility Assessment (RFA), completed in April 1989 by the California Department of Health Services, identified 81 potential solid waste management units (SWMUs) and three areas of concern (AOC) at NAS North Island. Of the three AOCs, only AOC 2, the Hazardous Waste Collection, Storage and Transfer Facility, was recommended for further action due to concerns about soil contamination. This is now identified as SWMU 1002.

SWMUs 1-12 - This sites are the same as CERCLA Sites 1-12.

SWMUs 8 and 13-81 - Recommended for no further action. SWMUs 13-81 are locations of suspected periodic waste disposal as identified by California DHS in the 1989 RFA.

Site 5 - Under California requirements, a Solid Waste Assessment Test (SWAT) and a Solid Waste Air Quality Assessment Test (SWAQAT) were completed in December 1988 for the Golf Course Garbage Disposal Area (Site 5). The SWAT found volatile organic compound contamination in the groundwater.

Site 6 - An interim measure which consisted of covering the site with plastic weighted down with sand was completed at the Seaview Heritage Park Salvage Yard.

FY90

UST 4 - Site Assessment performed.

FY91

SWMUs 82 and 83 - After completion of the RFA, two additional SWMUs, SWMU 82 and 83, were identified in FY91. SWMU 82, Bldg. 472 Sump, is now identified as part of the Industrial Waste Treatment System and will be handled under RCRA closure. SWMU 83, the Old Circular Runway, required further investigation.

UST 5 - Site Assessment performed

FY92

SWMU 83 - RCRA Facility Investigation (RFI) was completed at SWMU 83. No further action was recommended. This site is expected to be closed upon approval of the new RCRA permit in FY96.

Sites 4 and 6 - Two separate removal actions involving the installation of fencing to restrict access to the sites were completed at Site 4 in August 1992 and at Site 6 in September 1992.

FY93

SWMU 1002 - RFI was completed at SWMU 1002. No further action was recommended. This site is expected to be closed after approval of the new RCRA permit in FY96.

FY94

Sites 2-4, 7, and 12 - An SI was begun in September 1991 for Sites 2, 3, and 12 and another SI was begun in December 1991 for Sites 4 and 7. Both SIs were completed in December 1993 and the five sites were recommended for further action.

UST 01 - **Underground Storage Tank (UST) 1 includes nine leaking USTs which are being addressed under the RCRA Corrective Action Program. These USTs were identified as potential SWMUs 112-114 and 126-131 - and the investigation was conducted as a Phase I RFI to meet state requirements. The Phase I RFI involved sampling to characterize the nature and extent of contamination and was completed in FY94.**

UST 02 - UST 02 involved 15 abandoned USTs that were leaking petroleum. The investigation of UST 02 was completed in FY94. All tanks were either removed or closed in place by April 1994. Contaminated sites identified at the time the USTs were pulled are being cleaned up in conjunction with the work for UST 01.

UST 03 - Site Assessment performed

FY95

Site 1 - A bioassay, and sampling and analysis work plan for the Shoreside Sediment outfalls was completed.

Sites 2, 3, 5, 6, 7, 9, 10, and 12 - RFIs were underway.

Sites 9 and 11 - Corrective Measures Studies (CMSs) were underway.

Site 11 - Completed SCS

Sites 4, 6, and 10 - Time-critical removal actions were underway for washing the soil containing the chemical additive PCB under a Remedial Action Contract (RAC).

Site 10 - An emergency removal action was taken for radiation contaminated slag located on the bay shoreline.

Sites 4, 6, and 10 - Completed the removal action to excavate and treat soil contaminated with the chemical additive PCB on-site.

FY96

Sites 2, 3, 7, 8 and 12 - Completed RFIs

Site 1 - Started work on RFI for outfalls 1-8 and 16.

Site 2 - An IRA was conducted to eliminate exposure to incinerator ash by capping a portion of the Old Spanish Light Landfill. The removal was completed in March 1996.

Sites 9 and 11 - Began field operations for non-time critical removal actions using soil vapor extraction for chlorinated hydrocarbons.

Sites 9 and 10 - RFIs continued.

UST 06 - Identified Sept. 1996, removal in progress, estimate finish in 2006. This UST group includes about 10 miles of abandoned pipeline which was never identified by the base, and possibly as many as 50 abandoned tanks. UST 06 will get new work in 1997 in a records search.

Sites 8 and 12 - Response Complete. No further action proposed by Navy.

PROGRESS DURING FISCAL YEAR 1997

FY97

Site 1 - RFI/CMS completed for outfalls 9-15 (CDF area).

Site 11 - As part of the industrial waste treatment plant, Site 11 underwent RCRA closure and post-closure monitoring will be required through FY02. Based on preliminary results from the Site Characterization Study, the site is expected to require corrective action as part of the closure.

Site 10 - RFI continued with expanded investigation of shoreline area for heavy metals and radioactive slag.

UST 01 - Completed Corrective Measures Implementation.

UST 04 - Completed new investigations reflecting discovery of new contaminants.

UST 05 - Will begin free product recovery.

UST 06 - Conducted records search.

Site 4 - Completed 2 IRAs.

Sites 6 and 10 - Completed IRAs.

NORTH ISLAND NAS PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Site 1 - Will start CMSs for outfalls 1-8 and 16 (non CDF area) and for outfalls 9-15 (CDF area).
 Site 1 - Complete time-critical removal action (IRA) for outfalls 9 through 15.
 Site 4 - Completed 3 IRAs.
 Sites 1, 2, 4, 5, and 11 - Will begin LTO.
 Site 10 - TCRA for PCB contaminated soil completed.
 Site 9 - Will complete RFI. Begin pilot study for groundwater cleanup. Complete SVE IRAs.
 Sites 2 and 9 - Removal actions for radiation contaminated soils.
 UST 01 - Will complete corrective action and begin LTO.
 UST 02 - Will complete IRA and corrective action (IMP). Response will be complete
 UST 04 - This is being cleaned up under CERCLA guidelines. Will complete IRA. RC site.
 UST 06 - Will start removal of pipelines (expected to end in 2006).
 SWMU 83 - Complete RFA.
 USR 1 - Complete CMO.

FY99

Site 1 - Potential removal action for contaminated sediments.
 Sites 1 and 10 - Begin CMSs (if necessary).
 Sites 1, 2, 3, 4, 6, 7, 9, and 10 - Begin work on RODs.
 Site 5 - Complete CMI for contaminated soil.
 Site 10 - Complete removal action for contaminated soil/sediment.
 Site 11 - Begin Remedial Action.
 UST 04 - Begin free product recovery.
 SWMUs 78 and 80 - Develop RFI work plans.
 Sites 4, 10, and 11 - Complete RFI/CMS and RC sites.
 SWMU 80 - Complete RFI/CMS

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1							
RI / FS								
RD								
RAC			1					
RAO			1					
IRA			1(1)					
RC			1					
Cumulative % RC	0%	0%	100%	100%	100%	100%	100%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA	14		1					
RFI / CMS		1		4	3			7
DES					2	1	1	2
CMI		1		1			2	1
CMO			1					2
IRA	4(8)	3(4)	4(6)	2(2)				3(3)
RC	2		1	3	1			10
Cumulative % RC	12%	12%	18%	35%	41%	41%	41%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	1							1
CAP					1			
DES								2
IMP			1					2
IMO								1
IRA	1(1)		1(1)				1(1)	1(1)
RC			1		1			2
Cumulative % RC	0%	0%	25%	25%	50%	50%	50%	100%

NORTH ISLAND NAVAL DEPOT

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVAIRSYSCOM
 Size: (Combined with North Island NAS, California)
 Funding to Date: \$0
 Estimated Funding to Complete: \$0



Base Mission: Provides supply and support services to fleet units and shore activities

Contaminants: POLs

Number of Sites:

CERCLA: 0
 RCRA Corrective Action: 1
 RCRA UST: 0
 Total Sites: 1

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 0
 Medium: 0 Not Required: 1
 Low: 0

Sites Response Complete: 1	

PROGRESS AND PLANS

RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA		1						
RFI / CMS								
DES								
CMI		1						
CMO								
IRA								
RC		1						
Cumulative % RC	0%	100%	100%	100%	100%	100%	100%	100%

NOVATO DEPARTMENT OF DEFENSE HOUSING FACILITY

NOVATO, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVFACENGCOM
 Size: 829 Acres
 Funding to Date: \$174,000
 Estimated Funding to Complete: \$2,975,000



Base Mission: Houses military and Coast Guard personnel

Contaminants: Waste oils, waste paints, thinners, hydrocarbons

Number of Sites:

CERCLA: 0
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 1

Relative Risk Ranking of Sites:

High: 1 Not Evaluated: 0
 Medium: 0 Not Required: 0
 Low: 0

	BRAC III
Sites Response Complete: 0	

PROGRESS AND PLANS

UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	1							
CAP		1						
DES		1						
IMP			1					
IMO					1			
IRA		1(1)						
RC					1			
Cumulative % RC	0%	0%	0%	0%	100%	100%	100%	100%

OAKLAND FLEET AND INDUSTRIAL SUPPLY CENTER

OAKLAND, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVSUPSYSCOM
 Size: 698 Acres
 Funding to Date: \$8,580,000
 Estimated Funding to Complete: \$29,824,000



Base Mission: Receives, stores, and issues military supplies and materials to fleet units and shore activities in the Pacific Basin

Contaminants: Paint, PCBs, acid, solvents, thinners, pesticides, asbestos, POLs

Number of Sites:		Relative Risk Ranking of Sites:	
CERCLA:	25	High:	12
RCRA Corrective Action:	0	Medium:	3
RCRA UST:	3	Low:	1
Total Sites:	28	Not Evaluated:	0
		Not Required:	12

BRAC IV

Sites Response Complete: 12

EXECUTIVE SUMMARY

The Oakland Fleet and Industrial Supply Center (FISC) is located on the eastern shore of the San Francisco Bay, within the Port of Oakland. The facility opened in 1941 and began support operations for World War II. Typical supply center operations that contributed to the contaminated sites on the facility include a hazardous waste storage yard, transformer storage area and other storage and maintenance areas. Primarily groundwater is affected, but there is also some soil contamination. Current operations at the facility include pollution prevention technologies to prevent further contamination. A Federal Facility Site Remediation Agreement (FFSRA) was signed by the Department of the Navy and the State of California on September 29, 1992. In September 1995, the Base Realignment and Closure (BRAC) Commission of 1995 recommended closure of FISC. A Base Closure Plan (BCP) was completed in October 1996.

The area at FISC was originally created by placing dredged sand fill over the existing marshlands and bay mud. The groundwater from the facility is assumed to discharge into San Francisco Bay. The likely receptors for contaminants at Oakland FISC are the aquatic organisms in San Francisco Bay. The closing base is anticipated to remain an industrial area, not to be converted to housing, so the chance of human exposure to contaminants should remain low.

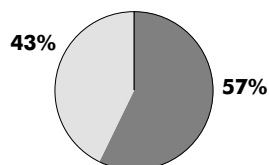
The Restoration Advisory Board (RAB) was formed April 5, 1995 and has 18 members. The two Information Repositories were established in March 1994 at FISC and at the Oakland Main Public Library.

According to the 1988 Preliminary Assessment (PA), hazardous wastes have never been disposed at the facility, they have always been removed from the facility for disposal. There were no active or inactive landfills. No major hazardous waste spills had been reported and no industrial waste treatment was performed on-site. The PA, which was completed in FY88 identified four potential sites, and recommended that three sites be scheduled for a Site Inspection (SI) but all four of the original sites continued with an SI.

Between FY89 and FY91, following the original PA, 17 new sites were identified and added to the program during additional PAs. In FY 93, four more sites were identified during an SI, but they were listed as Response Complete (RC), along with eight other sites, at the conclusion of the SI. In addition to the 12 sites listed as complete, 11 other sites have completed an SI. Two final sites will complete an SI in FY97. Ten sites have been scheduled for a Remedial Investigation and Feasibility Study (RI/FS), all are scheduled for completion by FY99. Ten sites are scheduled to complete a Remedial Design (RD) in FY00, followed by a Remedial Action (RA) phase, to be completed in FY01. There are no RCRA Corrective Action sites at the installation. Three RCRA Underground Storage Tank (UST) sites were identified during an Initial Site Characterization (ISC) (equivalent to a PA) in FY89. A Site Assessment (SA) was completed for one UST site in FY96. All three sites are scheduled to undergo a Corrective Action Plan (CAP) phase in FY98, a Design (DES) phase in FY99, and an Implementation (IMP) phase in FY00. UST sites are currently undergoing ground water monitoring which may lead to no further action closures in 1999.

Emergency removal actions were completed at numerous sites for the cleanup and removal of contaminated sludge and sediment inside storm drains and catch basins in FY95. The contaminated media was put into containers and disposed of at an appropriate off-site facility. Contaminants of concern were SVOCs and metals. A Time Critical Removal Action (TCRA) was completed for removal of contaminated soil and sandblasting grit on one site. A Remedial Action Plan (RAP), an equivalent of a CERCLA Record of Decision (ROD), for the state of California, was completed for 11 no-further-action sites. Community relations efforts were also conducted for the RAP. The Phase 1, Remedial Investigation (RI) on 5 sites, and Expanded Site Investigation on 7 sites were also completed. Additionally, TCRA for removal of contaminated soil was completed in FY96. Contaminants of concern removed were petroleum products, volatile and semi-volatile organic compounds, the chemical additive PCB and chemical solvents.

Current Status Of Sites



■ Studies Underway	16
■ Cleanups Underway	0
□ Response Complete	12
TOTALS	28

OAKLAND FISC RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - The area at FISC was originally created by placing dredged sand fill over the existing marshlands and bay mud on the eastern shore of the San Francisco Bay. The entire site is flat except where slopes have been accentuated by differences in the settling fill. The groundwater under the FISC is at a depth of 4 to 20 feet, and was found to be flowing to the Oakland harbor and to San Francisco Bay but at very slow speeds.



NATURAL RESOURCES - The likely receptors for contaminants at Oakland FISC are the aquatic organisms in Oakland harbor. Since the base property is mostly paved, there is little chance for terrestrial animals or humans coming in contact with contaminants in water or soil. The base is anticipated to stay an industrial area, not to be converted to housing when it closed, so the chance of human exposure to contaminants should remain low.



RISK - A base-wide Ecological Risk Assessment (ERA) and Human Health Risk Assessment (HHRA) were partially completed in FY95. Final ERA and HHRA will be completed in FY98, under Phase II of the RI/FS.

DOD Relative Risk Site Evaluation Model was used to rank the risk factors for all the sites on the installation in FY95. Of the 28 sites (CERCLA and UST sites), 12 received a high risk ranking. All the sites were ranked high for groundwater contamination. There is a potential pathway for migration of petroleum products, volatile and semi-volatile organic compounds, and the chemical additive PCB through the groundwater pathway into San Francisco Bay. Aquatic receptors are the concern, if the groundwater is proven to migrate off-base. Since the base is likely to remain an industrial setting, and is mostly paved, the likelihood of terrestrial animal or human receptors is low.

REGULATORY ISSUES



LEGAL AGREEMENTS - A Federal Facility Site Remediation Agreement (FFSRA) was signed by the Department of the Navy and the State of California on September 29, 1992. The FFSRA required the Navy to prepare a Scoping Document. The Scoping Document was completed on December 30, 1992 and recommended an Extended Site Inspection (ESI) for Sites 1, 4, 5 and 18-21 and an RI for Sites 2, 3 and 13-15. Thirteen sites (Sites 6-12, 16, 17 and 22-25) were recommended for no further action.



PARTNERING - A partnering arrangement has been in place since FY92 between Navy representatives, Department of Toxic Substances Control (DTSC) representatives and Regional Water

Quality Control Board (RWQCB) representatives. The partnering arrangement has accelerated the progress of the Installation Restoration Program (IRP) at Oakland FISC.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - The Restoration Advisory Board (RAB) was formed April 5, 1995 and has 18 members. Meetings are held once every two months. The RAB has allowed a greater sharing of information about the IRP with the community.

TECHNICAL REVIEW COMMITTEE - The Technical Review Committee (TRC) was the first community involvement in the review of the activities in the IRP. TRC was converted to a Restoration Advisory Board



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was finalized in November 1993.



INFORMATION REPOSITORY - An Administrative Record for Oakland FISC was established in FY92. A copy of the Administrative Record is housed in the installation's Information Repository, established in March 1994, and is also available for public viewing at the Oakland Public Library on 14th Street in Oakland, California.

BASE REALIGNMENT AND CLOSURE



BRAC - In September 1995, the Base Realignment and Closure (BRAC) Commission recommended closure of the Fleet and Industrial Supply Center (FISC), Oakland. The proposed closure date is September 1998.



BRAC CLEANUP TEAM - A BRAC Cleanup Team (BCT) was established in February 1996. The BCT's 3 members include the BRAC Environmental Coordinator (BEC), a member from the State's Department of Toxic Substances Control (DTSC), and a member from the United States Environmental Agency (USEPA)



REUSE - The City of Oakland Land Reuse Authority (LRA) has adapted the Port of Oakland Vision 2000. It is a plan to convert FISCO into a commercial land and water shipping facility.



LEASE/TRANSFER - The Navy has leased parcels to the Port of Oakland, under a special legislation, Public Law 102-484. A balance-of-the-base lease signed in August of 1997 completed long term leasing all parcels comprising FISC Oakland to the Port of Oakland.

HISTORICAL PROGRESS

FY88

Sites 1-4 - A Preliminary Assessment (PA), completed in March 1988, identified four sites with groundwater contaminated with petroleum products and soils contaminated with volatile organic compounds, the chemical additive PCB, pesticides, and fuels. The PA recommended three sites (Sites 1-3) for further study, but all four sites have gone on for further study.

FY89

USTs 1, 5 and 8 - Three RCRA Underground Storage Tank (UST) sites were identified during Initial Site Characterization (ISC) (equivalent to PA).

FY90

Sites 5-8 and 18-21 - Eight additional sites added to the IR program and a PA was completed.

FY91

Sites 9-17 - Nine additional sites added to the IR program and a PA was completed.

FY93

Basewide - A Federal Facility Site Remediation Agreement (FFSRA) was signed by the Department of the Navy and the State of California on September 29, 1992. The purpose of the FFSRA is to ensure State and Federal cooperation in accelerating and streamlining the remediation process and to set deadlines for the execution of the IR work. California Department of Toxic Substances Control (DTSC) agreed on the final Scoping Report on December 1993. The report classified the 25 total remaining sites into 13 NFA sites, 7 ESI sites and 5 RI sites.

USTs 1 and 5 - Interim Remedial Actions (IRAs) for tank removal were complete.

OAKLAND FISC HISTORICAL PROGRESS

FY94

Sites 2, 3 and 13-15 - An RI started.
 Sites 1, 4, 5 and 18-21 - An ESI started.
 USTs 1 and 5 - Corrective Action Plan (CAP) was started.
 UST 8 - INV and an IRA for tank removals was started.

FY95

Sites 1-4, 12, 13, 15, 18, 20 and 21 - Completed an Emergency Removal Action for the cleanup and removal of contaminated sludge and sediment inside storm drains and catch basins.
 Sites 1, 4, 5, 18, 20, and 21 - Completed the ESI. It recommended Site 5 for no-further-action, Sites 4, 19, and 21 for removal action, and Sites 1, 18, 20 and 21 for inclusion in the Phase 2, RI/FS.
 Completed the Phase 1 RI on 5 sites. It characterized the site conditions and contaminant chemistry and recommended all 5 sites for Phase 2, RI/FS. It also completed a baseline HHRA, ERA, and a partial storm drain and sediment investigation.
 Sites 1-4, 15, and 19 - Started documentation for a TCRA of contaminated soil. The Action Memorandum (AM), plans and specifications were completed.
 Sites 6-11, 16 and 22 - 25 - Completed a RAP. As requested by the State, Site 12 was dropped out of the RAP due to possible contaminated groundwater migration from adjacent Site 13. It will be included in the Phase 2, RI/FS.

Site 17 was dropped out of the RAP due to a radiological survey issue needing resolution. This site will be a NFA in future RAP.
 Site 15 - Completed TCRA for removal of soil contaminated with sand blasting grit. The site will be included in the Phase 2, due to groundwater concerns.
 UST 8 - As part of an on-going IRA, three known abandoned USTs and contaminated soil were removed.
 Leased 104 acres to the Port of Oakland.

FY96

Sites 1-4, 15 and 19 - Completed construction of the TCRA project removed the following: Site 1 removed 30 cubic yards (cys) of soil contaminated with SVOCs, mercury and lead; Site 2 removed 300 cys of soil contaminated with petroleum products and 75 cys with hazardous solvents; Site 3 removed 450 cys of soil contaminated with lead and PCB; Site 4 removed 540 cys of soil contaminated with PCB and pesticides; Site 15 removed 25 cys of soil contaminated with petroleum products; Site 19 removed 250 cys of soil contaminated with PCB.
 Site 20 - completed IRA.
 Sites 6-11, 16 and 22-25 - Completed SI.
 Sites 6-11, 16 and 23-25 - Achieved Response Complete (RC).
 UST 8 - Completed SA.
 Parcels 2 and 3 - Leased 34 acres to the Port of Oakland.

PROGRESS DURING FISCAL YEAR 1997

FY97

OU Offshore - Initiated RI/FS.
 USTs - Initiated expanded groundwater monitoring for.
 Site 2 (Building 740) - Initiated expanded investigation. Initiated documentation for a Time Critical Removal Action.

Site 1 - Began closure of the Permitted Hazardous Waste Storage Facility.
 Basewide - Completed "Balance of the Base" long term (50 years) lease to the Port of Oakland.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Sites - Begin the Phase II RI/FS. The RI/FS grouped the 10 sites into 3 areas of investigation. It will provide the data gaps needed to complete the RI and FS reports and the basewide RAP/ROD for groundwater, soils and sediments onshore.
 OU Offshore - Commence, as a separate Operable Unit (OU), a Focused RI/FS for the off-shore sediments in the. The RI/FS will be accelerated by using existing Navy dredge data and Port of Oakland data. It will also take into account the Ports proposed plan to create a wetlands by depositing a cap of clean dredge spoils at the site.
 Basewide - Close Permitted Hazardous Waste Facility.
 USTs - Produce CAP for all UST sites.

FY99

OUs - Produce Final RI/FS for both operable units; produce RAP/ROD for both operable units; and complete RD for both operable units. A RAP/ROD will be signed by January 1999 for both on-shore and off-shore operable units.
 USTs - Close all UST sites.
 Sites - Phase II RI/FS will be completed by December 1998
 OU Offshore - Complete Focused RI/FS for the off shore sediments in the harbor by December 1998.

OAKLAND FISC PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	22			3				
RI / FS			10					
RD				10				
RAC					10			
RAO								7
IRA	10(11)	6(6)						
RC	12			3	3			7
Cumulative % RC	48%	48%	48%	60%	72%	72%	72%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	1							
CAP				3				
DES				3				
IMP					2	1		
IMO						2	1	
IRA	2(2)	1(1)						
RC						2	1	
Cumulative % RC	0%	0%	0%	0%	0%	67%	100%	100%

OAKLAND FLEET AND INDUSTRIAL SUPPLY CENTER ALAMEDA ANNEX ALAMEDA, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVSUPSYSCOM
 Size: 81 Acres
 Funding to Date: \$7,259,000
 Estimated Funding to Complete: \$14,660,000



Base Mission: Receives, stores, and issues both not-ready-for-issue and ready-for-issue aviation materials

Contaminants: Acid, asbestos, heavy metals, PCBs, volatile organic compounds

Number of Sites:

CERCLA: 8
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 8

Relative Risk Ranking of Sites:

High: 4 Not Evaluated: 1
 Medium: 2 Not Required: 1
 Low: 0

BRAC IV

Sites Response Complete: 1

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	8							
RI / FS		3	5					
RD				4				
RAC						4		
RAO								3
IRA	1(1)		1(1)					
RC		1	3			1		3
Cumulative % RC	0%	13%	50%	50%	50%	63%	63%	100%

OAKLAND NAVAL MEDICAL COMMAND, NORTHWEST REGION

OAKLAND, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVFACENGCOM
 Size: 183 Acres
 Funding to Date: \$0
 Estimated Funding to Complete: \$0



Base Mission: Closed; NAVFAC is caretaker until transfer. Previously directed comprehensive health care services for the Navy

Contaminants: POLs

Number of Sites:

CERCLA: 0
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 1

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 0
 Medium: 0 Not Required: 1
 Low: 0

	BRAC III
Sites Response Complete: 1	

PROGRESS AND PLANS

UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	1							
CAP	1							
DES								
IMP								
IMO								
IRA			1(1)					
RC	1							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%

PICO RIVERA MARINE CORPS RESERVE TRAINING CENTER

PICO RIVERA, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV

Major Claimant: CMC

Size: 1 Acre

Funding to Date: \$0

Estimated Funding to Complete: \$224,000



Base Mission: Provides training for Marine Corps Reserve Personnel

Contaminants: POLs

Number of Sites:

CERCLA: 0

RCRA Corrective Action: 0

RCRA UST: 1

Total Sites: 1

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 1

Medium: 0 Not Required: 0

Low: 0

Sites Response Complete: 0

PROGRESS AND PLANS

UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								1
CAP								
DES								1
IMP								1
IMO								
IRA								
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

POINT MOLATE NAVY FUEL DEPOT

RICHMOND, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVSUPSYSCOM
 Size: 1,133 Acres
 Funding to Date: \$9,284,000
 Estimated Funding to Complete: \$16,076,000



Base Mission: Provides supply and support services to fleet units and shore activities

Contaminants: PCBs, polynuclear aromatic hydrocarbons, toluene, volatile and semi-volatile organic compounds

Number of Sites:

CERCLA: 4
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 4

Relative Risk Ranking of Sites:

High: 3 Not Evaluated: 0
 Medium: 1 Not Required: 0
 Low: 0

BRAC IV

Sites Response Complete: 0

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	4							
RI / FS			4					
RD					2	1		
RAC						3		
RAO								2
IRA	1(1)	1(2)	2(2)	1(1)				
RC			1			1		2
Cumulative % RC	0%	0%	25%	25%	25%	50%	50%	100%

POINT MUGU NAVAL AIR WEAPONS STATION

POINT MUGU, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVAIRSYSCOM
 Size: 4,500 Acres
 Funding to Date: \$21,462,000
 Estimated Funding to Complete: \$27,773,000



Base Mission: Performs development, test and evaluation, and follow-on engineering, logistic and training support for Naval weapons systems; provides major range and technical support for fleet users

Contaminants: Acid, ash, dredge spoils, hypochlorite, sludge, wastewater, low-level radiation, paint, POLs, pesticides, plating waste, PCBs, refuse with hazardous waste, chemical agents, heavy metals, solvents

Number of Sites:

CERCLA: 18
 RCRA Corrective Action: 0
 RCRA UST: 9
 Total Sites: 27

Relative Risk Ranking of Sites:

High: 5 Not Evaluated: 0
 Medium: 6 Not Required: 10
 Low: 6

Sites Response Complete: 10	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	11			1	1	4		1
RI / FS				2	3	6	2	2
RD					2	1	4	3
RAC						1	1	3
RAO								4
IRA		3(3)	2(2)			2(2)	3(3)	2(2)
RC	1			1	2	5	2	7
Cumulative % RC	6%	6%	6%	11%	22%	50%	61%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	9							
CAP								
DES								
IMP								
IMO								
IRA			1(1)					
RC	9							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%

POINT SUR NAVAL FACILITY

POINT SUR, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVFACENGCOM
 Size: 34 Acres
 Funding to Date: \$172,000
 Estimated Funding to Complete: \$125,000



Base Mission: Operates automated data gathering equipment

Contaminants: POLs

Number of Sites:

CERCLA: 0
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 1

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 1
 Medium: 0 Not Required: 0
 Low: 0

Sites Response Complete: 0	

PROGRESS AND PLANS

UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								
CAP					1			
DES								
IMP								
IMO								
IRA								
RC					1			
Cumulative % RC	0%	0%	0%	0%	100%	100%	100%	100%

POMONA NAVAL INDUSTRIAL RESERVE ORDNANCE PLANT

POMONA, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVSEASYS COM
 Size: 160 Acres
 Funding to Date: \$0
 Estimated Funding to Complete: \$2,575,000



Base Mission: Provides development, design, engineering, test, production and depot-level support of tactical, non-nuclear, surface and air launched weapons for the Naval Sea Systems Command

Contaminants: POLs

Number of Sites:

CERCLA: 3
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 3

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 3
 Medium: 0 Not Required: 0
 Low: 0

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI								3
RI / FS								3
RD								
RAC								
RAO								
IRA								3(3)
RC								3
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

PORT HUENEME NAVAL CONSTRUCTION BATTALION CENTER

PORT HUENEME, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVFACENGCOM
 Size: 33 Acres
 Funding to Date: \$29,005,000
 Estimated Funding to Complete: \$21,531,000



Base Mission: Provides support to Naval Construction Force, fleet units, and assigned organizational elements. Navy Civil Engineering Laboratory sites closed and transferred under BRAC III
 Navy Civil Engineering Laboratory sites closed under BRAC III

Contaminants: Heavy metals (copper, lead), PCBs, pesticides, volatile and semi-volatile organic compounds

Number of Sites:

CERCLA: 22
 RCRA Corrective Action: 0
 RCRA UST: 5
 Total Sites: 27

Relative Risk Ranking of Sites:

High: 6 Not Evaluated: 1
 Medium: 9 Not Required: 5
 Low: 6

Sites Response Complete: 5

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	3		6	1	9	1	2	
RI / FS			1		4	1	1	
RD		1		1	4	5	2	
RAC							2	
RAO								1
IRA			1(1)	1(1)	2(2)	4(4)	3(3)	2(2)
RC	3		2		10	2	4	1
Cumulative % RC	14%	14%	23%	23%	68%	77%	95%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	2	2	1					
CAP				2		1		
DES					1			
IMP						1		
IMO						1		
IRA	1(1)							1(1)
RC	2			1		2		
Cumulative % RC	40%	40%	40%	60%	60%	100%	100%	100%

SALTON SEA TEST RANGE

IMPERIAL COUNTY, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVFACENGCOM
 Size: 19,451 Acres
 Funding to Date: \$614,000
 Estimated Funding to Complete: \$0



Base Mission: Closed; NAVFAC is caretaker until transfer. Previously served as training facility for U.S. Navy, Army, and Marine Corps; formerly used by the Atomic Energy Commission for the Fat Man/Little Boy Project

Contaminants: Asbestos, depleted uranium, POLs, solvents

Number of Sites:

CERCLA: 22
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 22

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 1
 Medium: 0 Not Required: 21
 Low: 0

BRAC I

Sites Response Complete: 21

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	14	8						
RI / FS	5	4				1		
RD								
RAC	1							
RAO								
IRA			1(1)				2(2)	
RC	9	12				1		
Cumulative % RC	41%	95%	95%	95%	95%	100%	100%	100%

SAN CLEMENTE ISLAND NAVAL AUXILIARY LANDING FIELD

SAN CLEMENTE, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CINCPACFLT
 Size: 36,200 Acres
 Funding to Date: \$9,461,000
 Estimated Funding to Complete: \$12,163,000



Base Mission: Shore bombardment area for Pacific Fleet operations and training; research, development, testing and evaluation of missiles and missile systems; Navy and Marine training

Contaminants: Ordnance compounds, paint, asbestos, heavy metals, POLs, solvents, chemical agents, explosive chemicals, refuse with hazardous waste, scrap metal

Number of Sites:

CERCLA: 14
 RCRA Corrective Action: 0
 RCRA UST: 4
 Total Sites: 18

Relative Risk Ranking of Sites:

High: 2 Not Evaluated: 2
 Medium: 9 Not Required: 0
 Low: 5

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI								14
RI / FS								6
RD								11
RAC								3
RAO								
IRA		1(1)						7(7)
RC								14
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								4
CAP								3
DES								3
IMP								1
IMO								
IRA	1(1)	1(1)						
RC								4
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

SAN DIEGO FLEET AND INDUSTRIAL SUPPLY CENTER

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVSUPSYSCOM
 Size: 219 Acres
 Funding to Date: \$1,834,000
 Estimated Funding to Complete: \$5,032,000



Base Mission: Provides petroleum products to support military activities in Southern California

Contaminants: Inert material, heavy metals, POLs, sludge

Number of Sites:

CERCLA: 3
 RCRA Corrective Action: 0
 RCRA UST: 2
 Total Sites: 5

Relative Risk Ranking of Sites:

High: 3 Not Evaluated: 0
 Medium: 1 Not Required: 0
 Low: 1

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI			1					2
RI / FS								3
RD							1	2
RAC								3
RAO								
IRA								2(3)
RC								3
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA		1			1			
CAP								1
DES								
IMP								
IMO								1
IRA		1(1)						1(1)
RC					1			1
Cumulative % RC	0%	0%	0%	0%	50%	50%	50%	100%

SAN DIEGO FLEET ANTISUBMARINE WARFARE TRAINING CENTER PACIFIC SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV

Major Claimant: CNET

Size: 27 Acres

Funding to Date: \$26,000

Estimated Funding to Complete: \$1,737,000



Base Mission: Provides O&M training for antisubmarine warfare

Contaminants: POLs

Number of Sites:

CERCLA: 1

RCRA Corrective Action: 0

RCRA UST: 2

Total Sites: 3

Relative Risk Ranking of Sites:

High: 1 Not Evaluated: 0

Medium: 0 Not Required: 0

Low: 2

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI				1				
RI / FS								
RD								1
RAC								1
RAO								
IRA			1(1)					
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA				2				
CAP								
DES							1	1
IMP								2
IMO								
IRA	1(1)			1(1)				1(2)
RC								2
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

SAN DIEGO FLEET COMBAT TRAINING CENTER PACIFIC

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV

Major Claimant: CNET

Size: 94 Acres

Funding to Date: \$0

Estimated Funding to Complete: \$279,000



Base Mission: Provides specified tactical combat training

Contaminants: Inert material

Number of Sites:

CERCLA: 1

RCRA Corrective Action: 0

RCRA UST: 0

Total Sites: 1

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 0

Medium: 0 Not Required: 0

Low: 1

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI								1
RI / FS								
RD								
RAC								
RAO								
IRA			1(1)					
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

SAN DIEGO MARINE CORPS RECRUIT DEPOT

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV

Major Claimant: CMC

Size: 400 Acres

Funding to Date: \$1,021,000

Estimated Funding to Complete: \$1,258,000



Base Mission: Provides basic training for Marine Corps recruits

Contaminants: Solvents, POLs

Number of Sites:

CERCLA: 2

RCRA Corrective Action: 0

RCRA UST: 5

Total Sites: 7

Relative Risk Ranking of Sites:

High: 1 Not Evaluated: 0

Medium: 1 Not Required: 4

Low: 1

Sites Response Complete: 4	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	2							
RI / FS								
RD								
RAC								
RAO								
IRA								
RC	2							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	2	2						
CAP								
DES								
IMP	1	1	1					
IMO				1			1	1
IRA	2(3)							
RC	2			1			1	1
Cumulative % RC	40%	40%	40%	60%	60%	60%	80%	100%

SAN DIEGO NAVAL COMMAND CONTROL AND OCEAN SURVEILLANCE CENTER SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
Major Claimant: COMSPAWARSSYSCOM
Size: 600 Acres
Funding to Date: \$12,765,000
Estimated Funding to Complete: \$23,438,000



Base Mission: Principal Navy Research, Development, Test and Evaluation (RDT&E) center for command control, communications, ocean surveillance, surface and air launched undersea weapons systems

Contaminants: Non-chlorinated solvents, POLs, acid

Number of Sites:

CERCLA: 10
RCRA Corrective Action: 0
RCRA UST: 2
Total Sites: 12

Relative Risk Ranking of Sites:

High: 7 Not Evaluated: 0
Medium: 1 Not Required: 0
Low: 4

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1	2		2				5
RI / FS		1				1	1	7
RD				1			1	5
RAC								6
RAO								
IRA						1(1)	3(3)	6(6)
RC						1	1	8
Cumulative % RC	0%	0%	0%	0%	0%	10%	20%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA				1				1
CAP				1				1
DES								2
IMP								1
IMO					1			1
IRA					1(1)			2(2)
RC					1			1
Cumulative % RC	0%	0%	0%	0%	50%	50%	50%	100%

SAN DIEGO NAVAL COMPUTER AND TELECOMMUNICATIONS STATION SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVCOMTELCOM
 Size: 550 Acres
 Funding to Date: \$5,000
 Estimated Funding to Complete: \$66,000



Base Mission: Manages, operates and maintains facilities of the Defense Communication System

Contaminants: Heating oil, fuel, gasoline, diesel (petroleum constituents)

Number of Sites:

CERCLA: 1
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 2

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 1
 Medium: 0 Not Required: 0
 Low: 1

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI								1
RI / FS								
RD								
RAC								
RAO								
IRA								
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								1
CAP								
DES								
IMP								
IMO								
IRA								1(2)
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

SAN DIEGO NAVAL IN-SERVICE ENGINEERING WEST

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMSPAWARSSYSCOM
 Size: 82 Acres
 Funding to Date: \$1,374,000
 Estimated Funding to Complete: \$8,218,000



Base Mission: Communication and electronic systems support to Fleet

Contaminants: Volatile and semi-volatile organic compounds, heavy metals (lead, thallium carbonate), PCBs, POLs

Number of Sites:

CERCLA: 9
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 9

Relative Risk Ranking of Sites:

High: 7 Not Evaluated: 1
 Medium: 1 Not Required: 0
 Low: 0

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI		1	7					1
RI / FS				4				5
RD					4			5
RAC								2
RAO								1
IRA					4(5)		1(1)	2(2)
RC				4				5
Cumulative % RC	0%	0%	0%	44%	44%	44%	44%	100%

SAN DIEGO NAVAL MEDICAL CENTER

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV

Major Claimant: BUMED

Size: 86 Acres

Funding to Date: \$0

Estimated Funding to Complete: \$0



Base Mission: Provides general and specialized hospital and cleanup services

Contaminants: POLs

Number of Sites:

CERCLA: 1

RCRA Corrective Action: 0

RCRA UST: 0

Total Sites: 1

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 0

Medium: 0 Not Required: 1

Low: 0

Sites Response Complete: 1	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1							
RI / FS								
RD								
RAC								
RAO								
IRA								
RC	1							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%

SAN DIEGO NAVAL STATION

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CINCPACFLT
 Size: 1,127 Acres
 Funding to Date: \$24,527,000
 Estimated Funding to Complete: \$78,256,000



Base Mission: Provides logistical and personnel support to 25 major tenant commands, provides berthing and port services for ships, provides shore based training and shore activities for all ship crews

Contaminants: PCBs, POLs, heavy metals, unexposed ordnance, solvents, plating waste, blasting grit, electrolyte, asbestos, POL sludge, paint, pesticides

Number of Sites:

CERCLA: 14
 RCRA Corrective Action: 7
 RCRA UST: 1
 Total Sites: 22

Relative Risk Ranking of Sites:

High: 8 Not Evaluated: 0
 Medium: 2 Not Required: 8
 Low: 4

Sites Response Complete: 8	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	5	1		1	1			6
RI / FS					1			4
RD							1	6
RAC	1							
RAO								6
IRA	3(3)	3(4)	1(1)	1(1)	1(1)	1(1)		8(10)
RC	4							10
Cumulative % RC	29%	29%	29%	29%	29%	29%	29%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA	5							2
RFI / CMS	1	3						3
DES								4
CMI								1
CMO								3
IRA								4(8)
RC	1	2						4
Cumulative % RC	14%	43%	43%	43%	43%	43%	43%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA								
CAP								
DES								
IMP		1						
IMO								
IRA	1(2)							
RC		1						
Cumulative % RC	0%	100%	100%	100%	100%	100%	100%	100%

SAN DIEGO NAVAL SUBMARINE BASE

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CINCPACFLT
 Size: 300 Acres
 Funding to Date: \$682,000
 Estimated Funding to Complete: \$8,819,000



Base Mission: Operates shore facilities in support of the submarine force, U.S. Pacific Fleet and is home port for two submarine squadrons

Contaminants: Propellant, inert material, POLs, PCBs, non-chlorinated solvents, refuse

Number of Sites:

CERCLA: 5
 RCRA Corrective Action: 0
 RCRA UST: 4
 Total Sites: 9

Relative Risk Ranking of Sites:

High: 1 Not Evaluated: 5
 Medium: 2 Not Required: 0
 Low: 1

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1	1	1					2
RI / FS					1			4
RD								2
RAC					1			2
RAO								1
IRA		1(1)						2(2)
RC					1			4
Cumulative % RC	0%	0%	0%	0%	20%	20%	20%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA			4					
CAP								4
DES								1
IMP								1
IMO								1
IRA								1(3)
RC								4
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

SAN DIEGO NAVAL TRAINING CENTER

SAN DIEGO, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVFACENGCOM
 Size: 552 Acres
 Funding to Date: \$13,645,000
 Estimated Funding to Complete: \$17,941,000



Base Mission: Closed; NAVFAC is caretaker until transfer. Previously provided recruit training for enlisted personnel and primary, advanced, and specialized training for officers and enlisted personnel

Contaminants: Paint, pesticides, solvents, unexploded ordnance, POLs

Number of Sites:	Relative Risk Ranking of Sites:				
CERCLA:	6	High:	3	Not Evaluated:	0
RCRA Corrective Action:	0	Medium:	0	Not Required:	3
RCRA UST:	2	Low:	2		
Total Sites:	8				

BRAC III

Sites Response Complete: 3

EXECUTIVE SUMMARY

The San Diego Naval Training Center (NTC) lies on the northern arc of San Diego Bay. NTC is bordered by residential areas to the north, a boat channel and Lindbergh Field (San Diego International Airport) to the east, San Diego Bay and a commercial boat basin to the south, and residential areas to the west. Two man-made islands, Shelter Island and Harbor Island, also lie to the south of the complex. There are military, commercial, industrial, and recreational areas surrounding NTC. Past activities that contributed to contaminated sites at NTC are machine shop operations, plating shop operations, electronics training, dry cleaning training, fire fighting training, public works operations, pest control, painting, vehicle maintenance, medical and dental clinic operations, gas station operations, and photo lab operations. Contaminants include solvents, petroleum products, paint and pesticides. An inactive landfill and various areas with petroleum product contamination are the major areas of concern at NTC. Groundwater movement to the boat channel, bayfront areas near Harbor Island and the commercial boat basin may potentially contact humans through recreational activities or allow the pollutants to enter the wildlife food chain. The estuary and San Diego Bay are potential contaminant receptors. The 113 acre estuary, commonly referred to as The Boat Channel, bisects NTC. Since FY86, when an Initial Assessment Study was conducted, twelve sites have been identified with possible environmental concerns; five sites are being studied under CERCLA and seven sites are being studied under the Underground Storage Tank (UST) program.

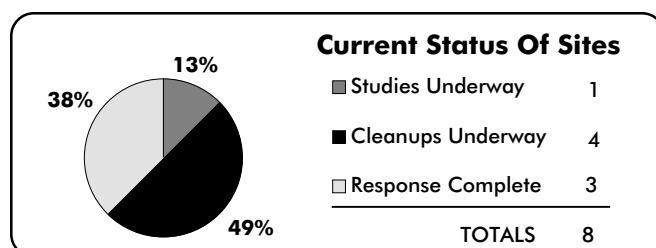
A twenty-five member Restoration Advisory Board (RAB), established in FY94, now meets bi-monthly. NTC has an extensive community relations program to establish and promote communication between the Navy and the community. Fact sheets that describe the sites that require cleanup were distributed. An Information Repository available to the public containing the Administrative Record was established in FY94 and is located at San Diego Central Library.

Fieldwork such as groundwater sampling and analysis, landfill gas sampling, and surface magnetic geophysical surveying for the Extended Site Inspection (ESI) began at Site 1, an inactive landfill, in FY95. Also in FY95, contaminated soil was removed and replaced with clean soil at Site 2, Site 8, and Site 9, all Underground Storage Tank (UST) sites. Contaminated soil was excavated during FY96 at Site 7, another UST site.

The Base Realignment and Closure (BRAC) Commission of 1993 recommended closure of the NTC, and relocation of personnel, equipment, and mission support to other Naval training centers. The center had operational closure on June 30, 1997. Certain facilities and activities located on the installation will be retained to support other Naval activities in the area. The BRAC Cleanup Team (BCT) was established in FY94. Some NTC property is currently being leased. The Mayor of San Diego appointed a 26-member Reuse Planning Committee to guide the reuse planning process. Fast track cleanup initiatives such as concurrent phasing to accelerate the cleanup schedule are in use at NTC.

The Environmental Baseline Survey (EBS), completed in FY94, identified 85 Points of Interest (POIs) where hazardous substances or petroleum products have been stored. A revised site specific Environmental Baseline Survey was completed in FY95. The BRAC Cleanup Plan (BCP) for the installation was also completed in mid-FY94. An updated BRAC Cleanup Plan was released in March 1995.

During FY95 the NTC Team categorized and evaluated POIs and identified an additional 7. POIs were broken up into four groups to facilitate action and early identification of potential problems. To date, 93 POIs have been identified. A POI Comprehensive report was completed in July 1996. Twenty three POIs were designated for further action. Through partnering with regulatory agencies, the Navy received concurrence letter from DTSC and U.S. EPA.



SAN DIEGO NTC RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - The majority of NTC is built on hydraulic fill material with moderate to high permeability. This may allow for contaminant migration to the boat channel. Overland surface runoff is collected by storm sewers that discharge into the boat channel. Groundwater is saline (salt water), not suitable for any potable, agricultural, or industrial use and occurs between 7 and 30 feet below ground surface (0 to 3 feet above mean sea level). Groundwater flow directions are assumed to be towards the estuary, the bayfront areas at Harbor Island, and the commercial boat basin. The discharge of polluted groundwater to the boat channel, bayfront areas near Harbor Island, and the commercial boat basin may potentially contact humans through recreational activities or allow the pollutants to enter the wildlife food chain. Drinking water is purchased from the San Diego County Water Authority.



NATURAL RESOURCES - NTC is adjacent to San Diego Bay, an important marine habitat. Sensitive wildlife habitats exist throughout San Diego Bay. No sensitive plant or animal habitats exist in the estuary at NTC. Numerous marine and shorebird species frequent the area. Large populations of rabbits and squirrels inhabit nearby undeveloped areas. The only endangered species found at NTC is the California least tern. The waterfront areas are used for commercial boating, recreational purposes such as sailing, water skiing, and recreational fishing, and wildlife habitat.



RISK - Human health and ecological risks were addressed in the Extended Site Inspection for Site 1, an inactive landfill, by September 1995. No other sites at NTC have had risk assessments performed yet.

Using the DOD Relative Risk Ranking Site Evaluation Model, three sites received high risk rankings including Site 12, Harbor Sediments, which received a "high" risk ranking due to potential contamination of sensitive marine species. Of the remaining sites at NTC, two sites ranked "low".



RESTORATION PROJECTS - A portion of Site 1 encompasses a protected area for the California least tern, an endangered species. Sand was brought in to cover the area and enhance the habitat for the birds.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - NTC is not listed on the National Priorities List (NPL).



LEGAL AGREEMENTS - There are currently no regulatory agreements in place.



PARTNERING - The NTC BRAC Cleanup Team (BCT) and its core member team meet monthly during most of the year in round table type atmosphere. The purpose is to keep the team together and well informed in all aspects of all environmental sites, as well as up to date on reuse issues. In addition to the round table meetings, the three member BCT holds monthly teleconferences mainly to enhance timeliness of decision making and document reviews. A secondary benefit of these meetings is to identify potential upcoming challenges and to identify important agenda items for the round table meetings. The Local Reuse Authority (LRA) is also involved in partnering sessions on a periodic basis. The frequency of these sessions is expected to increase as property transfer approaches.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Restoration Advisory Board (RAB) was created in January of 1994. The 25-member RAB meets monthly. The RAB facilitates the flow of information between the community and the BRAC Cleanup Team (BCT).



COMMUNITY RELATIONS PLAN - In FY92, the installation developed a Community Relations Plan (CRP). The CRP is used as a guide to better understand local concerns and identify the most effective ways to establish communication between the Navy and the community. An updated CRP was released in January 1995, and two fact sheets which describe the base conversion process and the Underground Storage Tank (UST) program were issued. Thirty-four community interviews were conducted to update the CRP and address community concerns.



INFORMATION REPOSITORY - An Information Repository was established in January 1994 to provide public access to the Administrative Record. The Administrative Record is the collection of official documents pertaining to the study and cleanup of sites. The Information Repository is located at the San Diego Central Library and an abbreviated repository is located at the San Diego City Library Point Loma Branch.

BASE REALIGNMENT AND CLOSURE



BRAC - NTC underwent operational closure on June 30, 1997 as recommended by the Base Realignment and Closure (BRAC) Commission of 1993. Final property disposal is expected to take place in 1999. The BRAC Commission recommended closure of the NTC, and relocation of personnel, equipment, and mission support to other Naval training centers. Certain facilities and activities located on the installation will be retained to support other Naval activities in the San Diego area. Of the 552 total acres, 420 acres will be available for transfer.



BRAC CLEANUP TEAM - The BRAC Cleanup Team (BCT) was established in FY94. Members include the Navy, California EPA (Cal EPA), and EPA Region IX.



DOCUMENTS - The Environmental Baseline Survey (EBS), completed in FY94, identified 85 Points of Interest (POIs) where hazardous substances or petroleum products have been stored. A Site Specific EBS was completed in FY96. The BRAC Cleanup Plan (BCP) was also completed in FY94. The BCP is a dynamic planning document that reflects the current status of remedial actions, and the changes that affect the ultimate restoration and disposal of NTC. Updates of the BCP were released in March 1995 and March 1996.

Environmental Conditions of Property Classification						
1	2	3	4	5	6	7
276 acres	125 acres	7 acres	17 acres	67 acres	6 acres	50 acres

Env. Encumbered Area	0	0	0	0
Env. Available for Transfer	276	125	7	16

76% of the property is classified as suitable for transfer, and 24% is either undergoing remedial action or requires further evaluation.



LEASE/TRANSFER - The San Diego City Council is the Local Redevelopment Authority (LRA), the City and the Navy negotiated a master lease which serves as the principle lease instrument for the entire base; it was signed in March 1996. The property included in the original negotiation was a portion of NTC called Camp Nimetz (approximately 70 acres). Additional property has been added to the master lease by negotiating modifications to the original master lease. More property can be added as the LRA identifies interim uses. Property transfer is expected to begin in January 1998.



REUSE - The LRA was expected to complete the draft reuse plan in FY97. Development of the Reuse Plan, National Environmental Policy Act Environmental Impact Statement (EIS), and the California Environmental Quality Act Environmental Impact Report (EIR) are being worked on concurrently. Expected completion date for the EIS/EIR Record of Decision (ROD) is October 1997.

SAN DIEGO NTC RELEVANT ISSUES



FAST TRACK INITIATIVES - Fast track cleanup initiatives at NTC include concurrent phasing to accelerate the cleanup schedule, contractor "over the shoulder" reviews to shorten

document review time, team-building to enhance communication, weighing reuse options in appropriate restoration decisions, and active communication with other installations to achieve consistency and share information.

HISTORICAL PROGRESS

FY86

An Initial Assessment Study (IAS) was conducted; twelve sites were identified with possible environmental concerns; five sites are being studied under the CERCLA program and seven sites are being studied under the Underground Storage Tank (UST) program.

FY89

Basewide - Completed Historic Resources Inventory.

FY90

Basewide - Completed Natural Resource Management Plan.

FY91

Site 2 - Completed Site Assessment.
UST 3 - Completed Site Inspection Report.

FY92

Site 1 - Completed Solid Waste Water Quality Assessment Test.
UST 3 - Completed Phase I Investigation, Initiated Free product removal.
UST 7 - Completed Building 49 UST Studies and UST removal.
Basewide - Completed Community Relations Plan.

FY93

Site 1 - Completed Action Memo and Initiated Interim Removal Action.

FY94

Site 1 - Completed Air Solid Waste Assessment Test (SWAT).
UST 2 - Initiated Petroleum contaminated soil removal.
UST 3 - Completed Workplan for Extended Site Assessment.
Sites 4-6 - Initiated Preliminary Assessment (PA).
UST 7 - Initiated Extended Site Assessment (ESA).
UST 8 - Initiated UST removal.
UST 9 - Initiated Petroleum contaminated soil removal.
Basewide - Completed Comprehensive and CERFA Environmental Baseline Survey.

FY95

Site 1 - Initiated Fieldwork for the Extended Site Investigation (ESI).
Site 4 - The California Department of Toxic Substances Control (DTSC) reviewed the PA and determined no further action is required.
Sites 5 and 6 - Completed PA; DTSC recommended further study; SI initiated.
Site 14 - Initiated Preliminary Assessment/Site Investigation (PA/SI).
Basewide - Completed a Revised Community Relations Plan.
UST 7 - Completed Extended Site Assessment.
USTs 2, 8 and 9 - Completed petroleum contaminated soil removal; however, UST 8 requires additional action due to remaining benzene in the saturated and unsaturated zones.
BCP - Updated.

FY96

Site 1 - Completed ESI; Initiated EE/CA. The EE/CA, scheduled for completion in FY96, was delayed to FY97 in order to address regulatory comments.
UST 2 - Completed soil removal action. Confirmation groundwater sampling occurred and No Further Action (NFA) concurrence was given by regulatory agencies, therefore, no groundwater treatment needed.
USTs 2, 3, 8, 10 and 11 - Completed investigation phase (SA).
Sites 5 and 6 - Completed the SI. DTSC concurrence on No Further Removal Action Planned (NFRAP) (RC).
POI 38 - Initiated SA for the sediments within the Steam Tunnels (POI 38).
UST 7 - Completed IRA.
USTs 10 and 11 - Completed Corrective Action Plan and initiated cleanup.
Sites 12 and 14 - The Environmental Baseline Survey (EBS) identified these new sites. Site 12 is an area of contaminated sediments in the boat channel. Site 14 encompasses various Points of Interest (POIs) where storage of hazardous substances or petroleum products has or may have occurred. Each POI either has or will undergo study.
Site 14 - Completed PA/SA on a large list of the POIs. Many POIs received 'No Further Action' from the regulatory participants as a result of this important effort.
BCP - Updated.
Master Lease - Negotiated and signed.
UST 9 - Response Complete.

PROGRESS DURING FISCAL YEAR 1997

FY97

Site 1 - Initiated Remedial Design (RD) and Remedial Action (RA) phases.
UST 8 - Completed RD and initiate RA, initiate groundwater monitoring.

UST 10 - Completed RA.
UST 11 - Completed CAP and cleanup in progress.
Site 12 - Initiated RI.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Site 1 - Complete AM, pursue sec. 334 CERCLA Deferral Authority.
Sites 12 - Complete RI.
Site 14 - Initiate IRA on POI 29, receive "No Further Action" on all remaining POIs.
Site 15 - Initiate ESI.

FY99

Site 1 - LTM.
Site 12 - Initiate FS.
Site 14 - Complete IRA and initiate Long Term Monitoring (LTM).
Site 15 - Complete ESI, initiate groundwater monitoring.

SAN DIEGO NTC PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	3	1						
RI / FS	1	2						1
RD		1	2					1
RAC					1			1
RAO		1		1				
IRA		1(1)		2(2)				1(1)
RC	2	1		1	1			1
Cumulative % RC	33%	50%	50%	67%	83%	83%	83%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	1	1						
CAP		1						
DES								2
IMP								2
IMO								1
IRA								1(2)
RC								2
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%

SAN NICOLAS ISLAND OUTLYING LANDING FIELD

SAN NICOLAS ISLAND, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVAIRSYSCOM
 Size: 13,370 Acres
 Funding to Date: \$5,458,000
 Estimated Funding to Complete: \$1,781,000



Base Mission: Serves as launch platform for short and medium range missile testing, and observation for missile testing and diverse test and research functions

Contaminants: Unexploded ordnance, solvents, POLs, PCBs, paint, pesticides, scrap metal

Number of Sites:

CERCLA: 7
 RCRA Corrective Action: 0
 RCRA UST: 8
 Total Sites: 15

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 2
 Medium: 1 Not Required: 10
 Low: 2

Sites Response Complete: 10	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	4					2		1
RI / FS						2		
RD							1	
RAC		4						1
RAO								
IRA		1(1)		1(1)				
RC		4				1		2
Cumulative % RC	0%	57%	57%	57%	57%	71%	71%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	6			2				
CAP					1			
DES								
IMP								
IMO								
IRA								
RC	6			1	1			
Cumulative % RC	75%	75%	75%	88%	100%	100%	100%	100%

SEAL BEACH NAVAL WEAPONS STATION

SEAL BEACH, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: COMNAVSEASYS
 Size: 5,000 Acres
 Funding to Date: \$28,589,000
 Estimated Funding to Complete: \$29,151,000



Base Mission: Receives, stores, maintains and issues conventional ammunition and surface and air launched guided missiles; maintains and operates ordnance systems component rework facility; distributes, maintains, stores and issues materials

Contaminants: Ammonium, picrate, heavy metals (chromium, lead), POLs

Number of Sites:

CERCLA: 47
 RCRA Corrective Action: 21
 RCRA UST: 9
 Total Sites: 77

Relative Risk Ranking of Sites:

High: 10 Not Evaluated: 8
 Medium: 8 Not Required: 42
 Low: 9

Sites Response Complete: 42	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	12	12	6	2	1	2		12
RI / FS			1	4	2	3	2	13
RD					1			2
RAC					1	1		1
RAO								2
IRA	1(1)	1(1)	1(1)	2(2)	3(3)	2(2)	1(1)	10(12)
RC	9	9	3	4	3	3	1	15
Cumulative % RC	19%	38%	45%	53%	60%	66%	68%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA	18			1				2
RFI / CMS								1
DES								1
CMI								
CMO								
IRA								2(3)
RC	18							3
Cumulative % RC	86%	86%	86%	86%	86%	86%	86%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	3	2						
CAP		1	1		2			
DES								
IMP	1	1			1			
IMO								
IRA	5(5)		2(3)	3(3)	1(1)			5(5)
RC	4	2	1		2			
Cumulative % RC	44%	67%	78%	78%	100%	100%	100%	100%

SKAGGS ISLAND NAVAL SECURITY GROUP ACTIVITY

SKAGGS ISLAND, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVSECGRU
 Size: 3,340 Acres
 Funding to Date: \$1,978,000
 Estimated Funding to Complete: \$1,828,000



Base Mission: Provides receiving facilities for point-to-point, ship to shore, local harbor and inter/intra-district communicators; provides high frequency direction finding for use in search and rescue operations and provides communications support

Contaminants: Dredge spoils, POLs, paint, heavy metals

Number of Sites:

CERCLA: 7
 RCRA Corrective Action: 0
 RCRA UST: 4
 Total Sites: 11

Relative Risk Ranking of Sites:

High: 3 Not Evaluated: 0
 Medium: 3 Not Required: 4
 Low: 1

Sites Response Complete: 4	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	7							
RI / FS	1			2		1	2	1
RD	1		1			1	3	1
RAC	1			1			1	4
RAO								2
IRA		4(4)	3(3)					
RC	1							6
Cumulative % RC	14%	14%	14%	14%	14%	14%	14%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	1							
CAP	3	1						
DES	2							
IMP	1	2	1					
IMO								
IRA	2(2)							
RC	1	2	1					
Cumulative % RC	25%	75%	100%	100%	100%	100%	100%	100%

STOCKTON NAVAL COMMUNICATION STATION

STOCKTON, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVCOMTELCOM
 Size: 2,788 Acres
 Funding to Date: \$20,844,000
 Estimated Funding to Complete: \$96,768,000



Base Mission: Manages, operates and maintains facilities, equipment and devices necessary to provide communications for the Command

Contaminants: Acid, blasting grit, industrial wastewater, pesticides, POLs, PCBs

Number of Sites:

CERCLA: 72
 RCRA Corrective Action: 0
 RCRA UST: 1
 Total Sites: 73

Relative Risk Ranking of Sites:

High: 40 Not Evaluated: 3
 Medium: 2 Not Required: 0
 Low: 28

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	55	1			16			
RI / FS						19	8	30
RD						3	14	31
RAC						3	1	43
RAO								13
IRA	5(6)	10(12)	2(2)	7(8)	1(1)	2(2)		
RC					15	5	1	51
Cumulative % RC	0%	0%	0%	0%	21%	28%	29%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA			1					
CAP			1					
DES				1				
IMP					1			
IMO						1		
IRA								
RC						1		
Cumulative % RC	0%	0%	0%	0%	0%	100%	100%	100%

SUNNYVALE NAVAL INDUSTRIAL RESERVE ORDNANCE PLANT

SUNNYVALE, CALIFORNIA

Engineering Field Division/Activity: EFAWEST

Major Claimant: SSP

Size: 160 Acres

Funding to Date: \$147,000

Estimated Funding to Complete: \$0



Base Mission: Government Owned-Contractor Operated (GOCO) facility operated by Lockheed Missiles and Space Company, Inc.; manufactures Naval Fleet Ballistic Missiles and provides assembly and testing of components

Contaminants: Heavy metals (chromium, silver), volatile organic compounds, POLs, PCBs

Number of Sites:

CERCLA: 16

RCRA Corrective Action: 0

RCRA UST: 0

Total Sites: 16

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 0

Medium: 0 Not Required: 16

Low: 0

Sites Response Complete: 16

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	16							
RI / FS	5							
RD								
RAC								
RAO								
IRA								
RC	16							
Cumulative % RC	100%	100%	100%	100%	100%	100%	100%	100%

TREASURE ISLAND NAVAL STATION

TREASURE ISLAND, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVFACENGCOM
 Size: 717 Acres
 Funding to Date: \$15,171,000
 Estimated Funding to Complete: \$87,651,000



Base Mission: Closed; NAVFAC is caretaker until transfer. Previously provided services and materials in support of operating forces and designated shore activities

Contaminants: Acetone, acids, benzene, heavy metals, pesticides, PCBs

Number of Sites:		Relative Risk Ranking of Sites:			
CERCLA:	28	High:	19	Not Evaluated:	0
RCRA Corrective Action:	0	Medium:	5	Not Required:	5
RCRA UST:	3	Low:	2		
Total Sites:	31				

BRAC III

Sites Response Complete: 5

EXECUTIVE SUMMARY

The former Naval Station Treasure Island (NAVSTA TI) is an island in the middle of the San Francisco Bay, midway between San Francisco and Oakland, California. The Naval Station was disestablished on 30 September 1997 and is now operated by the Engineering Field Activity West Caretaker Site Office Treasure Island (CSO Treasure Island). The facility consists of two contiguous islands: the north island (403 acres) is named Treasure Island (TI) and the south island (119 acres Navy owned) is named Yerba Buena Island (YBI). The sites of major concern at NAVSTA TI are Sites 6, 11, 14 and 22 which have soil and groundwater that are contaminated with petroleum products due to fuel storage and fire-fighting training activities. Installation Restoration (IR) Site 11 is a former small landfill with multiple contaminants including petroleum products, volatile organic compounds, and metals. With few exceptions, contamination at most of the IR sites is the result of petroleum products originating from fueling operations. Two sites have chlorinated solvent contaminated groundwater. Numerous storage tanks and underground fuel lines exist, many of which have been gradually abandoned since the 1950s. The Navy has since changed its operational processes to prevent further contamination. NAVSTA TI is under a Federal Facilities Site Remediation Agreement (FFSRA) with the California Environmental Protection Agency, Department of Toxic Substances (DTSC) and the Regional Water Quality Control Board (RWQCB) which was signed on September 29, 1992.

NAVSTA TI is surrounded by the waters of San Francisco Bay. Potential receptors of soluble contamination would include flora and fauna using or inhabiting the surrounding waters. Currently, habitat for endangered or sensitive species on NAVSTA TI is very limited, although some have been observed at or near NAVSTA TI. There is limited potential for human contact with or consumption of groundwater since drinking water wells are not used on NAVSTA TI.

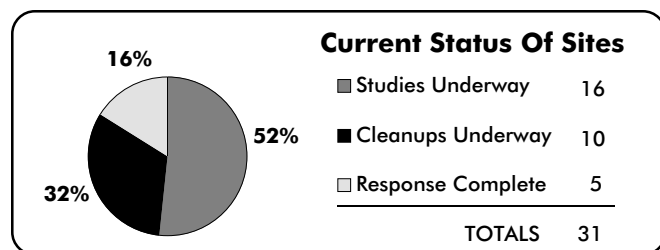
A Restoration Advisory Board (RAB) was formed in December 1993 and currently has 36 community members including environmental groups and

individual community members, excluding regulators and Navy personnel. The RAB provides community advice on issues related to base closure and environmental restoration. A Community Relations Plan (CRP) has been written and was updated in August 1997. Two public information repositories have been established, one at the San Francisco Main Library and the other at Treasure Island.

Since the beginning of the Installation Restoration Program (IRP) at NAVSTA TI, a total of twenty-eight CERCLA and three UST sites have been identified for further investigation. Field work for a Phase II Remedial Investigation (RI) study was completed in FY97. The bench scale soil bioremediation treatability study was completed in September 1997. A basewide interim groundwater monitoring plan for existing and new monitoring wells was completed in FY 97 and will be implemented in FY98 and FY99.

Immunoassay field tests, a rapid field screening technique, were used extensively at NAVSTA TI to guide the Phase IIB RI. Immunoassays allow more data to be reported faster and for less money than does the use of an analytical laboratory for analyses. Since results were immediately available, additional sampling locations were quickly identified and the field investigation accelerated. By field screening 80 percent of all samples, approximately \$1 million in analytical costs was avoided.

The BRAC Commission of 1991 recommended NAVSTA TI for closure. Operational closure of NAVSTA TI was completed in September 1997. The Navy plans to transfer property throughout the closure process as it becomes suitable for lease or transfer. Two Federal-to-Federal property transfers are nearing completion: 35 acres on Treasure Island to the Department of Labor (DOL) for a Job Corps Training Center and 10 acres to the Coast Guard on Yerba Buena Island. Three buildings have been leased to the city of San Francisco for use as film studios and other leases are in preparation for additional buildings and housing. The City of San Francisco is currently operating the entire base, providing all fire, security, utilities, and public works services under a Cooperative Agreement pursuant to complete property transfer to the City by 2002.



TREASURE ISLAND NS RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - TI and YBI are surrounded by the waters of San Francisco Bay. TI is a man-made island composed of dredged materials consisting of poorly graded fine sand placed over Yerba Buena Shoals. Groundwater at TI is generally encountered at 30 to 72 inches below ground surface. Because of the presence of relatively impermeable silt and clay lenses, there may be some perched conditions above the shallow water table. The direction of flow for both groundwater and surface runoff at TI is towards the Bay. Soluble contaminants would tend to migrate vertically through the sand to the water table or migrate overland in surface runoff. Less soluble contaminants may tend to bind with the soils and become relatively immobile.

YBI is a natural rock island with minimal soil cover. Surface soils are sandy loam to gravelly loam and subsoils are gravelly loam to sandy clay loam. Bedrock on YBI consists of sandstone and shale. Although there is limited information concerning groundwater at YBI, the groundwater in similar sites in the San Francisco Bay area is commonly present in sandstone or fractured shale due to infiltration. In the filled areas at YBI on the eastern side, soluble contaminants would potentially migrate to the Bay waters. At other areas on the Island, the surface runoff would either transport potential contaminants to the Bay or runoff would infiltrate into the Franciscan sandstone and shale. Less soluble contaminants would tend to bind with the soils and bedrock becoming relatively immobile or leaching small quantities to the surface runoff and ground water.

Drinking water wells are not used on TI or YBI. Subsurface water at TI and YBI proves impotable due to contact with the saline to brackish Bay waters. Water used by the facilities is conveyed by pipeline from San Francisco or Emeryville via the Bay Bridge.



NATURAL RESOURCES - TI consists of approximately 403 acres of developed flat terrain, covered mainly by buildings, roads, and parking lots. Most of the vegetation has been cultivated in landscaped areas. Any undeveloped habitat on NAVSTA TI is found on YBI (119 acres), where eucalyptus woodlands represent the largest habitat. Brushland, mixed woodland, and grassland are also present on YBI.

The Bay Area supports a variety of fish, birds, and mammals. The fishery resource includes anadromous fish which migrate through the Bay to spawn; native fish that remain in the area for life and shellfish such as crab and shrimp. The Bay is a seasonal home for many migrating birds since the San Francisco Estuary is a stopping point along the Pacific Flyway. Migratory birds observed at or near NAVSTA TI include several species of harvested waterfowl and passerine birds. The California sea lion and harbor seal are routinely seen in the San Francisco Bay waters at NAVSTA TI. A small group of harbor seals has been reported to frequent the southwestern and western shorelines of YBI during the winter. A survey of both Federal and California endangered or threatened species observed at or near NAVSTA TI included seven animals and 17 plant species.

The only rare or sensitive habitat that may be present at NAVSTA TI are the mudflats, which may be located on the western side of the cove between TI and YBI; and threatened and endangered species habitats.



RISK - Both a draft Baseline Human Health Risk Assessment (BHHRA) and a draft Ecological risk Assessment (EA) were prepared in conjunction with the draft final onshore RI Report (Tetra Tech, September 1997). Based on the results of the risk assessments, site characterization, and discussions with the regulatory agencies, the Navy is proceeding with no further action procedures at IR Sites 3, 7, and 8, and no further action after minimal soil removal at Site 1.

For the Department of Defense (DOD) Relative Risk Site Evaluation Model, 25 IR sites were ranked as high relative risk. The high rankings are primarily due to known contamination on the site and the migration potential to

ecological receptors present in the Bay or YBI, or exposure of on-site personnel through direct contact with both the soil and the near surface ground water. The groundwater is likely to be connected to the San Francisco Bay. A tidal influence study was completed for NAVSTA TI.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - NAVSTA TI is not on the National Priorities List.



LEGAL AGREEMENTS - A Federal Facility Site Remediation Agreement (FFSRA) between the Navy, the Department of Toxic Substances Control (DTSC), and the Regional Water Quality Control Board (RWQCB) was signed on September 29, 1992. Under this agreement, the Navy agreed to undertake, seek adequate funding for, implement, and report on specified tasks associated with environmental assessment and response actions for 22 sites under the IRP in accordance with CERCLA. In May 1996, the FFSRA was amended to include the three newly identified IR sites (Sites 27, 28 and 29) and the designation of offshore operable unit (OU) (Sites 13 and 27). Also, the FFSRA Appendix D schedule was revised to be consistent with the comprehensive strategy in the BRAC Cleanup Plan (BCP).



PARTNERING - The BRAC Cleanup Team (BCT) includes a member from each of the Navy, the U. S. EPA Region IX, and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) with the support of the RWQCB. The BCT has worked closely with the Remedial Project Manager (RPM) to expedite the RI process at NAVSTA TI.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - The Technical Review Committee (TRC) was formed to provide public involvement in the Installation Restoration Program (IRP) decision-making process. At the December 1993 meeting, the TRC was expanded into a Restoration Advisory Board (RAB) which represents the interests of a broader and more diverse cross-section of the community. Currently, the RAB has 36 community members including environmental groups and individual community members. The RAB meetings serve as a forum for the Navy, regulatory agencies, and the community to discuss issues related to base closure, environmental restoration programs, real estate transfer, and decision-making. Meetings are held monthly, with special meetings scheduled to facilitate comments on documents that RAB members are reviewing. Community RAB members also meet monthly, without the regulatory agencies and the Navy, to discuss topics and agenda for the next full RAB meeting.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) for the NAVSTA TI IRP was finalized April 23, 1992. The CRP was updated in August 1997 to reflect the community relations requirement under BRAC. A mailing list of all interested parties in the community is maintained by the Navy and updated periodically. Fact sheets describing the status of the IRP activities are distributed to the mailing list and informal meetings are held frequently for the general public. The BCT, with the support of the RWQCB, has conducted site tours and workshops for the community and RAB members regarding the environmental activities at NAVSTA TI.



INFORMATION REPOSITORY - Public information repositories have been established at NAVSTA TI and San Francisco Public Library Main Branch. These repositories contain information relative to environmental activities at NAVSTA TI. An Administrative Record file has also been established at EFA WEST in accordance with CERCLA requirements. A copy of the Administrative Record (AR) documents are contained in the Information Repositories.

TREASURE ISLAND NS RELEVANT ISSUES

BASE REALIGNMENT AND CLOSURE



BRAC - In July 1993, the BRAC Commission of 1993 recommended closure of NAVSTA TI and relocation of the Naval Reserve Center to Alameda, California, and the Naval Technical Training Center to Great Lakes, Illinois, and Little Creek, Virginia. Closure was completed in September 1997. The Navy plans to transfer property throughout the closure process as it becomes suitable for lease or transfer. The community reuse plan and Environmental Baseline Survey will be necessary for the efficient transfer of property.



BRAC CLEANUP TEAM - The BRAC Cleanup Team (BCT) was established in December 1993 and has presented community workshops on CERCLA and the cleanup process. The BCT works closely with the project team to expedite cleanup and to implement cost saving measures. The BCT includes the BRAC Environmental Coordinator (BEC), representatives of the U.S. EPA Region IX, and the California Environmental Protection Agency's Department of Toxic Substances Control.



DOCUMENTS - The BRAC Cleanup Plan (BCP) was finalized in March 1994 and updated in March 1995, 1996, and 1997. The draft Environmental Baseline Survey (EBS) was completed in FY94, and then finalized in FY95. The EBS placed all parcels in environmental condition of property categories 1, 2, 6, and 7. Nine parcels will be designated as Community Environmental Response Facilitation Act (CERFA) clean.

Environmental Conditions of Property Classification						
1	2	3	4	5	6	7
38 acres	9 acres	0 acres	0 acres	0 acres	189 acres	286 acres



LEASE/TRANSFER - The Navy intends to make NAVSTA TI property available for interim use and to transfer NAVSTA TI property as it becomes available and when requested by the city of San Francisco. Parcels may be identified for transfer based upon a Finding of Suitability to Lease (FOSL) or a Finding of Suitability to Transfer (FOST). These mechanisms will be developed and incorporated as the NAVSTA TI closure continues. FOSLs have been completed for building 2 and building 180 which are leased to the city of San Francisco. The city of San Francisco has subleased the buildings to film companies. FOSLs for the elementary school, building 3, the brig, the firefighting school, the police academy, the 1400 housing, and zones 1-4 (composed of residential and commercial areas) have been completed. These buildings will be leased to the city of San Francisco. Summary Documents for Federal-to-Federal Transfer of 35.5 acres to the Department of Labor and 10.66 acres to the U.S. Coast Guard of property at Treasure Island were completed and ready for final approval.



REUSE - A Naval Station Treasure Island Reuse Plan prepared for the Office of Military Base Conversion was endorsed by the Treasure Island Citizens Reuse Committee, Planning Department, City and County of San Francisco, and the San Francisco Redevelopment Agency. The endorsement was made by the City and County of San Francisco Board of Supervisors at their July 22, 1996 meeting. At this time, no transfers of property have occurred to the City. Four buildings have been leased to the city of San Francisco for use as film studios. In addition, the Department of Labor will be operating a Jobs Corps Training Center at NAVSTA TI. Documents for the Federal-to-Federal transfer were completed.



FAST-TRACK INITIATIVES - Early actions are an important component of the IRP at NAVSTA TI. Based on the results of the draft final Onshore RI and discussions with the regulatory agency representatives, an interim removal action is planned for one site, and no further action decision document is being prepared for four IR sites.

HISTORICAL PROGRESS

FY86

Site 14 - Test Underground Gasoline Spill, Report #1, completed as part of the SI.

FY87

Site 6 - Initial Hazardous Material Investigation, Report #2, and Investigation of Potential Soil and Groundwater Contamination of Tank 2, Report #3 completed part of SI.

Site 20 - Geotechnical Engineering Study, Proposed Family Housing Project, Report #4, was completed as part of SI.

FY88

Sites 1-26 - Preliminary Assessment/Site Inspection (PA/SI), Report #5, completed in April.

Sites 1, 3-7, 9-17, 19-22 and 24-26 - PA/SI recommended further action.

Sites 2, 8, 18 and 23 - No further action recommended in PA/SI.

Sites 8, 19 and 25 - The State of California reviewed PA/SI and recommended further investigation for these sites. The additional SI was completed in April and a Remedial Investigation/Feasibility Study (RI/FS) was recommended for all three sites.

FY89

Site 20 - SI Report, Former Tank 225A, Report #6, completed in November. USTs - Five Underground Storage Tanks (USTs) removed.

FY90

Site 11 - UST Removal, Tank 270, Report #7, completed as part of SI. USTs - Two USTs removed.

FY91

Sites 8, 19 and 25 - SI Report, Report #8, was completed and recommended an RI/FS for all three.

Site 20 - Soil Aeration Field Work Plan, Status on Aeration Project, and Bioremediation Treatment Letter Report, Report #9, completed as part of Interim Remedial Action (IRA).

FY92

FFSRA - Federal Facility Site Remediation Agreement (FFSRA) signed by Department of the Navy and the State of California in September.

Site 12 - Preliminary Risk Assessment Report, Report #10, completed as part of SI.

Sites 6 and 14 - Suitability Study for Floating Product Removal, Report #11, completed as part of IRA.

Site 6 - Hazardous Waste Testing Old Fire Fighting Training School, Report #12, completed as part of SI.

USTs - Twenty-three USTs removed.

FY93

Sites 13 and 13A - Stormwater Pollution Prevention Plan, Report #13, completed as part of PA.

Site 29 - Soil and Air Testing, Report #17, completed June and September as part of PA.

FY94

Sites 1, 3, 4-17, 19-22, 24 and 25 - Draft Phase I RI Report, Report #14, completed in November.

Sites 1, 3, 4-12, 14-17, 19-22, 24 and 25 - Draft Baseline Human Health Risk Assessment, Report #15, completed.

TREASURE ISLAND NS PROGRESS AND PLANS

Sites 1, 3, 4-17, 19-22, 24 and 25 - Draft Ecological Risk Assessment, Report #16, completed.
Sites 1, 3, 4-12, 14-17, 19-22, 24 and 25 - Draft Initial Screening of Technologies, Report #18, as part of FS.
Site 14 - Characterization Wells Letter, Report #19, completed Jaas part of IRA.
Sites 6, 22 and 25 - Draft Summary Report of UST Removals, Report #20, completed as part of IRA.

FY95

Basewide - Limited Basewide Environmental Baseline Survey (EBS)/Community Environmental Response Facilitation Act (CERFA) Report was completed in December 1994.
Site 6 - Initiated the removal of floating product by bailer and skimmer pump.
USTs - Five USTs removed.
EBS/FOSL - Site specific EBS/FOSL for Bldg. 2 and 180 was completed in August 1995.

FY96

FFSRA - Federal Facility Site Remediation Agreement (FFSRA) was amended and a revised Appendix D schedule was submitted in March 1996.
Site 6 - Continued the removal of floating product by bailer and skimmer pump.
Site 1-Medical Clinic - Source Control and Additional Characterization Summary Report completed.

Reports - The NAVSTA TI Tidal Influence Study Summary of Results was completed in December 1995. Approach to Development of Petroleum Cleanup Goals Protective of the San Francisco Bay Report was completed in January 1996. Phase II Ecological Risk Assessment (EA) Work Plan and Field Sampling Plan was completed in April 1996. Ecotoxicological Testing Sampling and Analysis Plan for Development of Petroleum Cleanup Goals was completed in August 1996.

Sites 12 and 17 - Technical Memorandum: Phase IIB RI Additional Characterization was completed in August 1996.

USTs at YBI - Closed-in-place 11.

USTs - Removed two USTs from government vehicle service station.

Site 1 - Completed IRA.

Sites 1 and 3 - Initiated a NFA ROD.

Continued preparation of the draft RI and draft Baseline Human Health Risk Assessment.

Three IR sites scheduled for EE/CA in FY96 and six more sites were transferred to the petroleum program and a Corrective Action Plan (CAP) was initiated for nine IR sites.

EBS - Final Basewide Environmental Baseline Survey (EBS) Report was completed in May 1996.

EBS/FOSL - Site Specific EBS/FOSL for Elementary School was completed in November 1995. Site Specific EBS/FOSL for building 3 was completed in June 1996. Site Specific EBS/FOSL for brig was completed in July 1996.

FOSL - FOSL for Fire-fighting School was completed in August 1996.

PROGRESS DURING FISCAL YEAR 1997

FY97

Fieldwork - Completed the Phase II ERA fieldwork for offshore site.
Sites 12 and 24 - Completed the additional characterization fieldwork.
BCP - Base Realignment and Closure (BRAC) Closure Plan (BCP) Revision 03 was completed in March 1997.
CRP - Community Relations Plan (CRP) Addendum was completed in August 1997.
Reports - Air Sampling Technical Memorandum was completed in February 1997. Bench-Scale Soil Bioremediation Treatability Study Report was completed in September 1997. EBS Sampling and Analysis Screening Level Report was completed in July 1997.
UST 234 - Tanks removed from NSTI.
UST 270 at YBI - Remedial investigation conducted.

EBS/FOSL - Site Specific EBS/FOSL for Police Academy was completed in April 1997. Site Specific EBS/FOSL for 1400 Series Housing was completed in May 1997. EBS/FOSL for Reuse Zone 1 was completed in July 1997. EBS/FOSL for Reuse Zone 2 was completed in August 1997. EBS/FOSL for Reuse Zone 3 was completed in September 1997. Draft EBS/FOSL for Reuse Zone 4 was completed in October 1997.

All Sites - The Remedial Investigation (RI) and the Feasibility Study (FS) reports will be completed for all sites by FY98. Nine IR sites which were determined by the Base Realignment and Closure (BRAC) Cleanup Team (BCT) to be impacted only by petroleum were transferred from the Navy's Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) program to the petroleum underground storage tank (UST) program.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Fuel lines - Complete removal. Conduct remedial investigation as required at fuel lines and complete CAP. Design remediation systems for fuel lines, as required.
UST 234 - Conduct remedial investigation.
UST Sites - Complete CAP and design remediation systems for UST sites, as required.
Reuse Zone 4 - Complete EBS/FOSL
Reuse Zones 5 and 6 - Prepare EBS/FOSL
Petroleum sites - Complete the CAP for petroleum sites.
 Complete the no further action (NFA) remedial action plan (RAP).
Site 12 - Complete the additional characterization for.
Sites 11, 28 and 29 (YBI) - Complete the ERA validation studies
Onshore Sites - Complete the onshore RI report. Initiate and complete the onshore FS report. Initiate the preparation of record of decision RAP, for onshore sites.
Offshore Sites - Initiate and complete the offshore OU RI and FS reports.
Site 12 - Initiate a soil removal EE/CA and IRA.
 Conduct interim groundwater sampling.
 Initiate and complete the remedial design for the petroleum sites.
 Complete asbestos surveys and abatement.
 Initiate lead based paint and soil abatement at pre-1960 housing.

FY 99

Offshore Sites - Initiate and complete the record of decision RAP, for offshore sites. Initiate the remedial design for offshore sites.
 Update EBS/FOST documents.
 Conduct interim groundwater sampling.
 Initiate the remedial action for the petroleum sites.
 Initiate the remedial design for the onshore sites.
 Complete lead based paint and soil abatement at pre-1960 housing.

TREASURE ISLAND NS PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	25							
RI / FS	10		13	2				
RD			10	11	2			
RAC			3	6	4	9		1
RAO					3	6	2	5
IRA	1(1)	1(1)	6(6)					
RC	4		1		5	10	2	6
Cumulative % RC	14%	14%	18%	18%	36%	71%	79%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	2		1					
CAP		1		1				
DES		1		1				
IMP			1		1			
IMO					1		1	
IRA	2(2)	1(1)						
RC	1				1		1	
Cumulative % RC	33%	33%	33%	33%	67%	67%	100%	100%

TREASURE ISLAND NAVAL STATION HUNTERS POINT ANNEX SAN FRANCISCO, CALIFORNIA

Engineering Field Division/Activity: EFAWEST
 Major Claimant: COMNAVFACENGCOM
 Size: 936 Acres (493 Acres on Land/443 Submerged)
 Funding to Date: \$118,641,000
 Estimated Funding to Complete: \$279,163,000



Base Mission: Closed; NAVFAC is caretaker until transfer. Previously modified, maintained and repaired ships until 1974; was leased to Triple A Machine Shop, Inc. from 1976 to 1986 for commercial ship repair; Department of the Navy regained possession of property in 1987

Contaminants: Heavy metals, PCBs, POLs, volatile and semi-volatile organic compounds

Number of Sites:	Relative Risk Ranking of Sites:
CERCLA: 69	High: 25 Not Evaluated: 0
RCRA Corrective Action: 0	Medium: 22 Not Required: 15
RCRA UST: 0	Low: 7
Total Sites: 69	

NPL**BRAC II**

Sites Response Complete: 15

EXECUTIVE SUMMARY

Treasure Island Naval Station Hunters Point Annex (NSTI Hunters Point) is in the southeast portion of San Francisco County, California. It is a deactivated Navy shipyard that was selected and approved for closure and disposition by the Base Realignment and Closure (BRAC) Commission in 1991. It is currently under caretaker status by the Naval Facilities Engineering Command's Engineering Field Activity West located in San Bruno, California. Portions of NSTI Hunters Point have already been leased to private parties. Because of the presence of hazardous materials resulting from past shipyard operations and the operations of a commercial machine shop that had leased NSTI Hunters Point from 1976 to 1986, the EPA placed the installation on the NPL in 1989. Site types include landfills and land disposal areas. The Navy Radiological Defense Laboratory (NRDL) used multiple buildings at Hunters Point Annex. The Atomic Energy Commission determined the buildings were clean although the State of California requested additional sampling. Low level radiation was found outside some of the NRDL buildings and continues to be investigated.

NSTI Hunters Point is on a long promontory in the southeastern portion of San Francisco, extending eastward into San Francisco Bay. The facility is bounded on the north and east by the bay, and on the south and west by the Bayview/Hunters Point district of San Francisco. Between 70 and 80 percent of NSTI Hunters Point is relatively flat lowlands constructed by placing fill materials along the bay margin. The remaining land is on a moderately to steeply sloping ridge. Most of the lowlands are covered by asphalt paving and structures. The open areas are either sparsely vegetated or bare soil. Potential contaminant migration pathways exist via both surface runoff and infiltration of the rain water. Stormwater runoff is channeled to discharge in San Francisco Bay. Stormwater percolating into the soils has the potential to migrate via the groundwater to the San Francisco Bay where both human and ecological receptors are present.

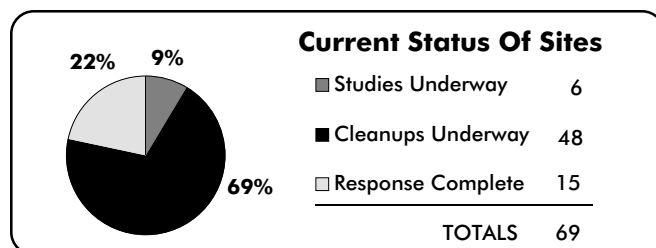
NSTI Hunters Point is currently under a Federal Facility Agreement (FFA) that was signed by the Navy, the EPA, and the California Environmental Protection Agency (Cal/EPA) in 1992.

The Technical Review Committee was converted to a Restoration Advisory Board (RAB) in FY94 and has 32 members from the community, local business, and regulatory agencies. An Information Repository was established at two local libraries.

At the end of FY97, preliminary study phases have been completed for all sites, and the Remedial Investigation/Feasibility Study (RI/FS) phase is underway at 56 sites. The ROD for Parcel B was signed in October 1997 for fourteen sites, which are now in the Remedial Design (RD) phase. The Remedial Action for Parcel B is expected to start in FY 98. A no-action ROD was signed in November 1995 for Parcel A, and eight sites are currently Response Complete(RC).

In FY92, the installation successfully demonstrated an innovative technology for recycling sand blasting grit containing low levels of copper and lead from ship cleaning operations. A full scale demonstration using the grit was completed in FY93. The Navy can use this technology at other installations.

In 1991, NSTI Hunters Point was included in the Base Realignment and Closure (BRAC) Program. A revised approach to investigation and remediating sites was implemented at this time. Sites were divided into geographic areas, Parcels A-F, to facilitate investigation and remediation. The intent is to transfer the land, parcel by parcel, to the City of San Francisco as various parcels are remediated. The concerns of the local community are primarily economic reuse of the facility, and increasing the economic potential of the community. The community has experienced 20 to 30% unemployment since the base was placed in industrial reserve in 1974. Operational base closure was 01 April 1994. The Navy is making local small and disadvantaged businesses aware of subcontracting opportunities, encouraging mentor and protégé arrangements under large business contracts, and conducting aggressive outreach programs.



TREASURE ISLAND NS HUNTERS POINT ANNEX

RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - There are three aquifers under NSTI Hunters Point. The groundwater is not used for any purpose, and no irrigation or water supply wells are located at NSTI Hunters Point. The nearest public water supply well is about 2.5 miles inland from the base. A commercial bottled-water company, Albion Mountain Spring, is located within 2,300 feet of the facility. Albion Mountain Spring extracts groundwater for commercial sale to the public. However, the groundwater extracted and used by Albion appears to be separate and distinct from the groundwater beneath NSTI Hunters Point. It is unlikely that any contamination found in NSTI Hunters Point groundwater would impact Albion's bottled water supply. Surface water drainage is primarily through sheet-flow runoff. The runoff is collected by an on-site storm drain system that is discharged through several outfalls into San Francisco Bay. No naturally occurring channeled drainage exists; any pre-existing drainage channels have been filled or modified by construction over the years.



NATURAL RESOURCES - Terrestrial and aquatic ecosystems are present at NSTI Hunters Point. Although most of NSTI Hunters Point is covered with asphalt, buildings, or other structures, vegetated areas supporting the terrestrial fauna exist. These are areas of disturbed landscape, non-native grassland, and salt marsh. All four habitats are somewhat disturbed as a result of past or current activities. The aquatic system consists of wetland, pelagic intertidal, and subtidal habitats that are contiguous with San Francisco Bay. Threatened or endangered species that have been observed at NSTI Hunters Point include chinook salmon, longfin smelt, peregrine falcon, loggerhead shrike, and California brown pelican.



RISK - A three-phased Ecological Risk Assessment (ERA) to determine any potential adverse effects on the biota in the area was initiated in August 1994. The first phase involved the review of existing documentation, performing bioassays and field surveys, and identifying biota. The Ecological Sampling and Analysis Plan is complete and field work began in late FY95. A separate schedule has been established for the investigation of potential impacts from radiation generated from radium dials disposed at Site 1 (Industrial Landfill). Using the DOD Relative Risk Ranking System, 24 sites were ranked high, 20 were ranked medium, and 5 were ranked as low relative risk. Seventeen other sites were not evaluated. The high relative risk sites were so ranked primarily because of the potential for contaminants to migrate through the groundwater pathway to the San Francisco Bay where both human and ecological receptors are present. Some sites were ranked high based on contamination present in the soil and the potential for workers on site or recreational users to be exposed to the contaminants. Seven removal actions have either been completed or are underway at the high ranked sites. The Agency for Toxic Substances and Disease Registry (ATSDR) performed a Public Health Assessment in FY94. Concerns were raised about restricting access to sites and subsistence fishing offshore of NSTI Hunters Point.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - NSTI Hunters Point was included on the National Priorities List in November 1989 based on a Hazard Ranking System Score of 48.77. The presence of hazardous materials resulting from past shipyard operations and the operations of a private company who had leased NSTI Hunters Point from 1976 to 1986, contributed to the NPL classification.



LEGAL AGREEMENTS - A Federal Facility Agreement (FFA) was signed in 1990. A revised agreement was signed by the California Department of Toxic Substances Control, the California Regional Water Quality Control Board (San Francisco Bay Region), and by the Department of the Navy in 1991. It was also signed by the EPA Region IX in 1992. The agreement defines work schedules and required deliverables for each operable unit. The FFA schedule was renegotiated in June 1995.



PARTNERING - While there are no formal partnering agreements, the BRAC Cleanup Team (BCT) was formed in FY94 and has helped improve communications and partnering among the installation, EPA, and the state.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was established in 1988. The TRC was converted to a Restoration Advisory Board (RAB) in FY94 and has 32 members from the community, local business, and regulatory agencies. The RAB meets monthly and is currently being reorganized. The RAB provides a forum for diverse opinions to be directed to the BCT and to resolve issues.



COMMUNITY RELATIONS PLAN - In 1989, a Community Relations Plan (CRP) was completed. An update was started in early 1996 and completed in December 1996. Other community relations activities include public meetings, open houses, workshops, and distribution of fact sheets and newsletters.



INFORMATION REPOSITORY - An Administrative Record was established and information repositories were set up in 1989. The Information Repositories, containing copies of the Administrative Record documents, are located at the following two local public libraries: San Francisco Public Library, Anna E. Waden Branch, 5075 Third Street, San Francisco Public Library; Main Library, corner of McAllister and Larkin. Both repositories were updated in 1993 and are now updated quarterly.

BASE REALIGNMENT AND CLOSURE



BRAC - In 1991, NSTI Hunters Point was included in the Base Realignment and Closure (BRAC) Program. A BRAC Cleanup Plan was completed in FY94 and updated annually. A revised approach to investigation and remediating sites was implemented at this time. Sites were divided into geographic areas, Parcels A-F, to facilitate investigation and remediation. The intent is to transfer the land to the City of San Francisco, parcel by parcel, as various parcels are remediated.
Parcel A: Sites 19, 41, 43, 59 and 77.
Parcel B: Sites 6, 7, 10, 18, 20, 23, 24, 26, 31, 42, 46, and 60-62.
Parcel C: Sites 25, 27-30, 49, 57, 58, 63 and 64.
Parcel D: Sites 8, 9, 16, 17, 22, 32-35, 37, 39, 44, 48, 53, 55 and 65-71.
Parcel E: Sites 1-5, 11-15, 21, 35, 40, 47, 52, 54, 56, 72-73, and AOCs, 74-76
Parcel F: Site 78.
Multi-parcel sites 38, 45, 50 and 51 were consolidated into adjacent sites within respective parcels.



BRAC CLEANUP TEAM - A BRAC Cleanup Team (BCT) was formed in January 1994. The BCT meets every two weeks. The BCT has helped improve communication and partnering among the installation, EPA, and the state. The BCT also has helped expedite cleanup. The BCT will use Records of Decision (RODs) to streamline the decision-making process.



DOCUMENTS - For Parcel A, a No-Action ROD was signed in November 1995. For Parcel B, a ROD was signed in October 1997. A Basewide Environmental Baseline Survey (EBS) was completed in May 1996. The Basewide EBS is currently being updated and basewide Finding of Suitability to Lease (FOSL) is being prepared in anticipation of Lease in Furtherance of Conveyance (LIFOC) to San Francisco in March 1998.

Environmental Conditions of Property Classification

1	2	3	4	5	6	7
1	34	0	53	0	405	443
acre	acres	acres	acres	acres	acres	acres

TREASURE ISLAND NS HUNTERS POINT ANNEX RELEVANT ISSUES



LEASE/TRANSFER - A LIFO with the City of San Francisco is planned for the second quarter FY-98. As parcels are cleaned, FOSTs will be prepared and the Parcels transferred to the City of San Francisco. Parcel A is planned to be transferred in FY98.



REUSE - The Reuse Plan was completed in March 1995. The plan has been approved by the Mayor's Hunters Point Shipyard Citizens' Advisory Committee next and by the City's Board of Supervisors. General reuse expectations are for education, arts, industrial, and maritime use.



FAST TRACK INITIATIVES - Hunters Point Annex has been divided into six parcels. This has allowed the accelerated remediation of one parcel. Other remediation techniques that have accelerated the cleanup include investigation by excavation, early removal actions, and shorter document review periods. Funding appropriations have, and will continue to fall short of the levels needed to maintain an accelerated response action program. The strategy so far has been to use available funds to maximize compliance with the enforceable Federal Facility Agreement (FFA) schedule.

HISTORICAL PROGRESS

FY84-FY90

Sites 1-12 - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA), was completed and identified 12 potentially contaminated sites. Sites 2 and 10 were found not to pose a threat to human health or the environment and no further action was recommended. Site 12 (Bay Sediments), was found to have sediment contaminated with copper, lead, and zinc. No further action was recommended for Site 12 in the IAS based on the determination that the sediment was "best left undisturbed." Removal actions, with no further investigation, were recommended at Sites 4, 7 and 8. Sites 1-3, 5, 6, 9, 10 and 11 were recommended for further investigation.

Sites 1, 4 and 8 - Contaminated soil removals were completed.

Site 11 - Soil removal was complete and the site was capped.

Sites 12-18 - Concurrent with the IAS, the San Francisco District Attorney's Office investigated allegations that a machine shop illegally disposed of hazardous waste at approximately 20 locations during its lease of portions of NSTI Hunters Point. A second PA was completed and Sites 12-18 were identified. The number 12 was re-used at this time and is not the same Site 12 identified in the 1984 IAS. Sites 12, 15 and 17 were recommended for an Remedial Investigation (RI). Sites 16 and 18 were recommended for an SI. The machine shop was indicted for illegal disposal of hazardous waste.

Sites 19-58 - A third PA was completed. Of the forty sites identified (Sites 19-58), Sites 19 and 23-58 went on to an SI and Sites 20, 21 and 22 went directly to an Remedial Investigation/Feasibility Study (RI/FS).

Site 8 - Soil contaminated with the chemical additive PCB was discovered during the repair of an underground utility line in the vicinity of Building 503. A removal action was completed to remove soil containing PCB. Soil was excavated and transported to an off-site disposal facility. The site was included in the RI.

FY91

Site 1 - Began investigation of potential impacts from radiation generated from industrial dials disposed of in the landfill.

USTs 1-5 - Underground Storage Tanks (USTs) were removed and some were closed in place. Removal Action Plans and Tank Abandonment Plans were completed for 23 tanks within all 5 sites. The tanks were removed or closed in place.

FY92

Fast Track parcelization plan was developed and implemented. Base was divided into five Parcels, A through E.

Site 2 - A removal action to remove soil contaminated with heavy metals was completed.

Site 6 - Removal action of immediately adjacent soil was completed.

Sites 16 and 18 - An SI was completed. Both sites were recommended for further action.

Sites 6 and 8-10 - Draft RI was completed and found PCBs, lead, zinc and Volatile Organic Compounds (VOCs) in soil and groundwater. A Public Health and Environmental Evaluation was completed. A draft FS was completed and Interim Remedial Actions (IRAs) were proposed for Sites 6, 9 and 10.

Sites 1-3, 6 and 10 - Site Soil Treatment Feasibility Study was completed. The study found that large quantities of contaminated soil will require remediation during the course of RI/FS activities. On-site soil remediation will not be effective for Sites 1 and 2 due to disseminated metals and other contamination dispersed throughout the ground mass.

USTs 1-5 - USTs are being tracked by parcel. Seven additional tanks were identified in Parcel C. Further investigation with no further excavation due to the close proximity of buildings or other structures to the tanks was recommended for 6 tanks. Additional excavation with no further investigation was recommended for one tank.

FY93-FY94

Ecological Sampling and Analysis Plan is completed. Field work began.

First phase of a three-phased Ecological Risk Assessment (ERA) was completed. The ERA was necessary to determine any potential adverse effects on the biota in the area. The first phase involved the review of existing documentation, performing bioassays and field surveys, and identifying biota.

Site 2 - Removal of PCB-contaminated sludge and a 150,000 gallon tank was completed.

Site 6 - Removal of nine 12,000 gallon tanks and their foundations, one 210,000 gallon tank, and underground piping was completed. In addition, a clay and gravel cap was placed over the site and rainwater runoff was collected and drained to the existing storm drain.

FY95

The City's Reuse Plan for Hunters Point Shipyard was finalized in March 1995. In order to facilitate investigation, cleanup, and transfer of both onshore and offshore areas, the offshore area of the base was identified as a distinct parcel, Parcel F.

A basewide Environmental Baseline Survey was started. Site Specific EBSS (SSEBSs) will be conducted in conjunction with a Finding of Suitability to Lease (FOSL) as properties are prepared for leasing.

Federal Facility Agreement (FFA) schedules were renegotiated in June 1995 and now include schedules for Parcels A and F. Parcel F is the off-shore portion of NSTI Hunters Point.

Completed draft RI/FS at Parcel A.

Site 9 - Removal of equipment, sunken baths, above ground structures, foundations, and soil contaminated with zinc and chromate began at the Pickling and Plate Yard. The project team included local residents who were specifically hired and trained to perform this work.

Site 3 - An Engineering Evaluation/Cost Analysis (EE/CA) is underway. A treatability study for chemical/thermal bioremediation in-situ is also underway. The treatability study is part of the removal action and may be used for the final remedy.

Sites 1, 2, 6, 50, 57 and basewide - Removal action activities continued.

UST 1 - This site was determined to be RC.

TREASURE ISLAND NS HUNTERS POINT ANNEX HISTORICAL PROGRESS

FY96

A basewide EBS was completed in May 1996.
The CRP was revised and released in early FY97. The release of CRP was delayed due to the establishment of a new RAB in August 1996.
Sites 19, 41, 43 and 59 - RI/FS was completed and these sites were determined to be RC.

Parcel A - A No Action Record of Decision (ROD) was signed in November 1995. Parcel A will be transferred in FY98.

Parcels B and D - RI/FSs were completed.

Parcels B, C, D and E - Removal actions initiated include groundwater plume, storm drains, and exploratory excavation. Remedies considered include groundwater pump and treat, iron curtain, and excavation and disposal.

PROGRESS DURING FISCAL YEAR 1997

FY97

Basewide - Basewide EBS/FOSL for lease in furtherance of conveyance started. BCP update complete. Twenty SSEBS/FOSLs completed to support interim reuse.
Basewide EIS/EIR continued.
Parcel A - Draft Final Parcel A FOST completed.
Parcel B - Parcel B CERCLA ROD completed. Remedial Design started. Three CERCLA Removal Actions completed.

Parcel C - Draft/Draft Final RI and Draft FS completed. Draft Final FS started. Three CERCLA Removal Actions completed.

Parcel D - Draft Final RI, Draft and Draft Final FS, Draft and Final Proposed Plan, and Draft CERCLA ROD complete. Two CERCLA Removal Actions complete.

Parcel E - Draft RI complete. Draft Final RI and Draft FS started. Two CERCLA Removal Actions complete. Two additional CERCLA Removal Actions started.

Parcel F - Ecological Risk Assessment (RI) completed. Draft FS started.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Basewide - NEPA ROD complete. EBS/FOSL in support of LIFOC completed. Execute LIFOC. Three SSEBS/FOSLs complete.
Parcel A - Transfer Parcel to City of San Francisco. FOST completed.
Parcel B - Complete RD, start Remedial Action.
Parcel C - Complete Draft Final FS, Draft and Draft Final Proposed Plan, Draft CERCLA ROD complete. Start RD.
Parcel D - CERCLA ROD complete. Start/complete RD.
Parcel E - Draft Final RI, Draft and Draft Final FS, Draft and Final Proposed Plan, Draft CERCLA ROD complete. Complete two Removal Actions.
Parcel F - Draft and Draft Final FS, Draft and Draft Final Proposed Plan.

FY99

Parcel B - Complete Remedial Action. Start/complete FOST. Transfer to City of San Francisco. Perform Long-Term Monitoring (LTM).

Parcel C - Final CERCLA ROD complete. Complete RD. Start Remedial Action.

Parcel D - Start RA.

Parcel E - Final CERCLA ROD complete. Start RD and RA.

Parcel F - Draft and Final CERCLA ROD complete. Start/complete RD. Start RA

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	67							
RI / FS	50	12	6					
RD		17	13		15		14	
RAC			14	9	8	9	13	1
RAO								17
IRA	2(2)	18(18)	3(3)		1(1)			
RC	10	5	14	6	5	2	10	17
Cumulative % RC	14%	22%	42%	51%	58%	61%	75%	100%

TUSTIN MARINE CORPS AIR STATION

TUSTIN, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CMC
 Size: 1,383 Acres
 Funding to Date: \$40,384,000
 Estimated Funding to Complete: \$2,166,000



Base Mission: Provided services and materials to support the operations of the Third Marine Aircraft Wing; provided operations training and weather support; operated helicopter outlying fields and air traffic control facility

Contaminants: Benzene, dichloroethane, ethylbenzene, naphthalene, pentachlorophenol, POLs, toluene, xylene trichloroethylene

Number of Sites:		Relative Risk Ranking of Sites:			
CERCLA:	10	High:	1	Not Evaluated:	0
RCRA Corrective Action:	2	Medium:	1	Not Required:	10
RCRA UST:	0	Low:	0		
Total Sites:	12				

BRAC II

Sites Response Complete: 10

EXECUTIVE SUMMARY

Tustin Marine Corps Air Facility (MCAF) is located in southern California near the center of Orange County. The installation is approximately 40 miles south of downtown Los Angeles, approximately 100 miles north of the California-Mexico border, and seven miles from MCAS El Toro. Operations such as aircraft maintenance and servicing, fire fighting training, and storage of petroleum products have been the biggest contributors to sources of contamination. Contaminants consist of Volatile Organic Compounds (VOCs) and petroleum products primarily affecting groundwater and soil.

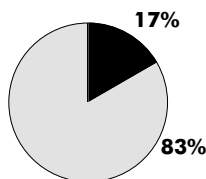
The installation occupies approximately 1,383 acres of land, of which approximately 30 percent is currently used for agriculture. Within the last 20 years, the area surrounding Tustin MCAF has transformed from primarily agricultural land to a residential and light manufacturing neighborhood. Both surface water and groundwater are of concern in the Tustin MCAF area. Five miles downstream from the station, the Upper Newport Bay Ecological Reserve encompasses 752 acres of coastal wetlands set aside for wildlife. In addition, a 300 acre duck pond is located between Tustin MCAF and the Upper Newport Bay. Groundwater contamination was found in three areas of the base, all in the shallow groundwater zone. The impacted shallow groundwater is not used for drinking water purposes. Based on the predicted migration of contaminated groundwater and further degradation of groundwater quality beneath the base, remediation is being considered at three locations to reduce the concentrations of chemicals to levels that meet federal drinking water standards. This action is necessary since the groundwater beneath the base is considered a suitable or potentially suitable drinking water supply.

A Restoration Advisory Board (RAB) was formed in FY94 and has 24 members which meet on a bi-monthly basis. The Community Relations Plan (CRP) was revised in August 1995. An information repository has been established at the University of Irvine at California (UC Irvine) and eight fact sheets have been issued.

To accelerate cleanup, a thermal desorption process was selected for on-site treatment of contaminated soils. Two on-site remediation projects, the Former Fuel Farm (Site 30) and one of two Rapid Refueling Pits, have successfully been remediated using the thermal process. The acceleration was an effort by the BRAC Cleanup Team to meet the disposal and reuse priority. The thermal process will also be used on petroleum contaminated soils at similar sites, such as former UST locations, identified during on-going site characterization.

The majority of Tustin MCAF was recommended for closure by the BRAC II commission in 1991. The BRAC III commission further closed all of Tustin MCAF. Operations and activities at Tustin MCAF are expected to cease by July 1999. Due to the lack of definition at the time of the Tustin groundwater characteristics, the California Environmental Protection Agency (Cal-EPA) and EPA did not concur with the initial Community Environmental Response Facilitation Act (CERFA) determination in April of 1994. Groundwater characteristics have been defined and the regulatory agencies have encouraged resubmittal of the CERFA determination. The BRAC Cleanup Team (BCT) is taking steps to negotiate with the Local Redevelopment Authority (LRA) to determine the priority for the reuse parcels without compromising the mission requirements nor the cleanup activities. Draft Findings of Suitability to Transfer (FOSTs) were prepared for eight parcels in FY96. One Finding of Suitability for Lease was prepared in FY 97, and two more have been initiated.

Current Status Of Sites



■ Studies Underway	0
■ Cleanups Underway	2
□ Response Complete	10
TOTALS	12

TUSTIN MCAS RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - When the installation was first developed in 1942, the area was found to be fairly marshy. The area was backfilled and regraded and an extensive surface and subsurface drainage network was installed. The drainage network is still in use today, providing runoff control at the installation. Storm drainage ditches discharge to Peters Canyon Channel on the east side which also receives runoff from Barranca Channel on the southwest side of the base. Peters Canyon Channel merges with San Diego Creek which feeds the Upper Newport Bay Ecological Reserve, a coastal wetlands area. Wells within one mile of Tustin MCAF are primarily used for agricultural purposes, although the city has a drinking water well one and a half miles away and the Irvine Ranch Water District has two deep drinking water wells within one mile north of Tustin both of which are upgradient in all aquifers to Tustin MCAF. No groundwater is currently extracted from directly beneath Tustin MCAF for drinking water purposes. Drinking water for the base is supplied by the Irvine Ranch Water District.

The installation lies in the Irvine groundwater basin, a subbasin of the Los Angeles groundwater basin. A shallow-deeper dual aquifer system has been identified beneath Tustin MCAF. The shallow groundwater flows generally in a southward direction in areas west of Peters Canyon Channel and to the west in the remainder of the base east of Peters Canyon Channel. The deeper or regional aquifer is believed to be 130 to 150 feet beneath Tustin MCAF. The flow in the regional aquifer is to the west-southwest. Groundwater extraction beneath Tustin MCAF is currently from the regional aquifer through one well operated by the on-site farmer and is used for irrigation only. Because groundwater in the shallow aquifer beneath the base contains high levels of natural salts and total dissolved solids, and yields little water when pumped, it has not been extracted, or used for residential, industrial, or agricultural purposes.



NATURAL RESOURCES - Two regional species listed as either federally threatened or potentially threatened are present in the vicinity of Tustin MCAF. The California gnatcatcher is a threatened species. In addition, the California least tern is an endangered species. The Upper Newport Bay Ecological Reserve, into which Peters Canyon Channel flows, was established in 1975 to preserve and enhance the saltwater marsh ecosystem. Eight species classified by California as either rare or endangered are dependent on the Upper Newport Bay. A series of marshy wildlife refuges are located immediately adjacent to San Diego Creek. Many plant and animal species settle in this wildlife refuge.

Specific to Tustin MCAF, a biological survey conducted in 1993 concluded there were no nesting peregrine falcons, no evidence of large raptor nests on the Historic blimp hangars, no nesting California gnatcatchers, and no suitable gnatcatcher habitat. The survey also noted that the California least tern is a regional species whose habitat is located only along ocean fronts and that no least tern habitat was found during the biological survey. Finally, the survey also noted the lack of suitable nesting sites for the southwestern pond turtle.



RISK - Baseline Human Health Risk Assessments and Ecological Risk Assessments have been conducted on a site by site basis as part of the RI/FS. Four sites were ranked as high relative risk in the DOD Relative Risk Ranking System. The high ranking was due to contaminated groundwater for three of the sites and contaminated soil for one of the sites.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - The base is not on the National Priorities List.



LEGAL AGREEMENTS - In 1990, efforts began between the State of California and the DON to enter into a Federal Facility Site Remediation Agreement (FFSRA). There is no FFSRA under negotiation and completion of such an agreement is not anticipated. A master schedule for all CERCLA-related work was developed in FY 1995 and has been updated as sites are completed.



PARTNERING - The BRAC Cleanup Team (BCT) has agreed to use "team building" tools, which include frequent technical discussions, weekly telephone calls and an open door policy on communication among the various entities. Project team members, state, federal and contractors, are partners with the BCT in the development of the cleanup plan.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in August 1993. A Restoration Advisory Board (RAB) was formed in FY94 with 69 members, and divided into ten subcommittees to address various Areas of Concern (AOC) or interest. As of the end of FY97 there are approximately 24 members on the RAB, which meet on a bi-monthly basis. All RAB meetings are advertised and made open to the public. Technical presentations to assist members in understanding complex environmental issues are given as needed. Separate meetings to discuss specific documents, comments and responses to comments are held on an as needed basis.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was originally prepared in November 1990 for Tustin MCAF. In August 1995, new community interviews were conducted and the CRP was revised to reflect the community's concerns following the announcement that Tustin MCAF would be closing. One public hearing was conducted for the Proposed Plan for Operable Unit 3. Eight fact sheets have been issued.



INFORMATION REPOSITORY - An information repository (IR) was established at the Main Library of the University of California at Irvine in FY94. The IR contains documents related to the Installation Restoration Program (IRP) process including the Administrative Record index, work plans, technical reports and community relations materials, including the CRP, fact sheets, news releases and RAB meeting materials. As specific project needs dictate, such as removal actions at various sites, appropriate documents are made into a featured collection for the IR and made available to the public.

BASE REALIGNMENT AND CLOSURE



BRAC - Tustin MCAS was identified for partial closure in the Defense Base Closure and Realignment Act of 1990 (PL101-510) Base Realignment and Closure (BRAC II). All of Tustin MCAS was identified for closure by the BRAC III commission. Operations and activities performed at the installation are currently being discontinued or transferred to other Marine Corps installations. Operations and activities are expected to cease sometime between January 1998 and July 1999. Investigation and remediation of hazardous waste sites at Tustin MCAF will continue. The communities surrounding Tustin MCAF are already considering potential uses for the land that will be available when the military leaves. They want the environmental restoration process to proceed as quickly as possible so that they will not be hampered in developing the land to suit community needs.



BRAC CLEANUP TEAM - The BRAC Cleanup Team (BCT) was formed in FY93 and is composed of members from Tustin MCAF, USEPA, Cal-EPA/DTSC. In addition, Remedial Project Manager meetings are held and staff representing El Toro MCAS, Naval Facilities Engineering Command (NAVFAC) Southwest Division (SWDIV), City of Tustin and the Regional Water Quality Control Board Santa Ana also attend. The BCT meets regularly to address issues regarding cleanup at the installation and to expedite the process.



DOCUMENTS - The BRAC Cleanup Plan (BCP) was last updated in March 1997. The Environmental Baseline Survey (EBS) was published in April 1994 to support the CERFA determination. Another EBS will be performed in January 1998 to support property transfers anticipated in July 1998. The Environmental Condition of

TUSTIN MCAS RELEVANT ISSUES

Property (ECP) was completed and the findings are summarized in the following table.

Environmental Conditions of Property Classification						
1	2	3	4	5	6	7
1,285 acres	4 acres	11 acres	1 acre	14 acres	67 acres	0 acres

Due to the lack of definition of the Tustin groundwater characteristics, the Cal-EPA and USEPA did not concur with the CERFA determination in April 1994, which resulted in classifying the entire base property as ECP Category 7. In the following three years, steps have been taken to characterize the groundwater. Today, none of the base property is classified Category 7, and the majority of property is classified as Suitable for Transfer (within the first four categories). The BRAC Cleanup Team is taking steps to negotiate with the LRA to determine the priority for the reuse parcels without compromising the mission requirements nor the cleanup efforts.



LEASE/TRANSFER - Identification of uncontaminated or clean parcels has not yet been finalized, however, draft Findings of Suitability to Transfer (FOST) have been initiated for property

where the BCT agreed would be classified as uncontaminated. Draft FOSTs were prepared for eight parcels in FY96. A Findings of Suitability to Lease (FOSL) was completed for one hangar building in 1997. Additional transfers planned for 1998 and 1999



REUSE - A community reuse plan has been developed and was sent to the Housing and Urban Development (HUD) in October 1996. It has been approved by HUD. A preliminary draft of the combined Environmental Impact Statement/Environmental Impact Report has been prepared and a Record of Decision is expected in May 1998.



FAST TRACK INITIATIVES - Major steps taken to expedite cleanup include: Completion of cleanup of Former Fuel Farm Area; Completion of a single phase RI at seven IRP sites; Completion of a base wide groundwater RI; Completion of Expedited Site Characterization as developed by Argonne National Lab; Mobilization of an on-site Thermal Desorption Unit and identification and completion of removal actions at three IRP sites and multiple AOCs.

HISTORICAL PROGRESS

FY84

Site 1 - An Interim Remedial Action (IRA) was completed at Moffett Trenches and Crash Crew Pits in 1984 that involved sandbagging the Peters Canyon Channel to prevent contaminated groundwater from seeping into the channel, installing an extraction well and an oil/water separator, and excavating and backfilling the crash crew burn pits with clean sand.

FY85

Sites 1-14 - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA) was completed in September 1985 and identified 14 potentially contaminated sites at Tustin MCAS.

Site 1 - In May 1985, the Santa Ana Regional Water Quality Control Board (SARWQCB) issued a Cleanup and Abatement Order to stop seepage and cleanup contaminated soil at Moffett Trenches and Crash Crew Pits. A Confirmation Study, Verification Phase Report (equivalent to a Site Inspection (SI)) was completed in July 1985 and was revised in September 1986. The study consisted of interpretation of new and existing data that indicated that groundwater and soil were contaminated with petroleum products and benzene, and the organic solvents trichlorethylene (TCE) and dichloroethane (DCA).

FY86

Site 1 - A removal action involving the excavation and disposal of contaminated soil at Moffett Trenches and Crash Crew Pits was completed in April 1986.

FY87

Site 16 - In May 1987, fuel was discovered in two holes excavated adjacent to two aboveground storage tanks at the Fuel Farm Area (Site 16). The tanks were removed and the soil was confirmed to be contaminated with petroleum hydrocarbons.

FY88

Site 1 - An IRA involving the installation of a gunite concrete slurry wall and the construction of a french drain was completed in July 1988 at Moffett Trenches and Crash Crew Pits.

Site 16 - A PA was completed in July 1988 for the Fuel Farm Area. The investigation found the following petroleum products: benzene, ethyl benzene, toluene and xylene in the groundwater.

FY91

RCRA Sites - An Addendum to the PA (the IAS), completed in February 1991, identified 14 additional potential sites (all 14 of these sites are being studied under RCRA).

Site 1 - An extended SI was completed in February 1991 for Moffett Trenches and Crash Crew Pits.

FY92

Site 16 - A removal action was completed in November 1991 for the Fuel Farm Area which consisted of removing 39 tanks.

RCRA Sites - Phase I of RCRA Facility Assessment (RFA) which consisted of a Preliminary Review was completed in March 1992.

FY93

Site 16 - A Site Characterization was completed in September 1993 for the Fuel Farm Area.

RCRA Sites - Phase II of an RFA, which consisted of a visual SI, was completed in November 1992. Of the 246 Solid Waste Management Units (SWMUs) visited, 58 SWMUs were recommended for Phase III, a RCRA sampling visit. An aerial photography review was completed in December 1992, 11 Areas of Concern (AOCs) were identified and recommended for further investigation.

FY95

Sites 1, 3, 5, 7, 12, 13 and 35 - An RI/FS was initiated.

Sites 17-26 and 36-40 (RCRA sites) - Phase III RFA was initiated.

Sites 2, 6, 8, 9 and 11 - An Extended Site Investigation (ESI) was initiated.

FY96

OU1, OU2 and OU3 - Completed RI/FS field work, issued draft RI/FS.

OU1 covers basewide groundwater and is designated Site 35. OU2 covers soil at Sites 3, 5, 12, 13 and 16. OU3 covers Site 1 soil and groundwater.

Sites 17-26 and 36-40 - Completed RFA field work, issued draft RFA, complete phase III of RFA.

Site 1 - Water Board Cleanup and Abatement Order (Issued 1985) rescinded in May 1996.

Sites 7 and 16 - Transferred to the Leaking Underground Fuel Tank (LUFT) program.

TUSTIN MCAS HISTORICAL PROGRESS

BRAC - Environmental work to clear 6 parcels for FY96 transfer has been completed. Parcel specific EBS, FOSTs and other supporting documentation are being developed. Draft FOSTs were prepared for eight parcels. Eight parcels were made environmentally ready for disposal. Land reuse plan

submitted by City of Tustin to Department of Housing and Urban Development (HUD).

Site 1 - Recession of Cleanup and Abatement Order by Santa Ana Regional Water Quality Board, May 1996.

PROGRESS DURING FISCAL YEAR 1997

FY97

Sites 2, 7, 8, 9 and 11 - Completed ESI.

Sites 3, 5, 12, 13, 16 and 35 - Completed RI. Commenced FS for sites 3, 12, 13 and 35.

Sites 17 and 40 - Completed RFA.

Sites 2, 9 and 13W - Completed IRAs.

Sites 2, 6, 8 and 15 - Response Complete.

Site 7 South - Completed Petroleum Corrective Action.

Site 1 - Proposed Plan issued, public meeting held and draft Record of Decision prepared.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Sites 1, 3, 12, 13 and 35 - NFA; carry 3 RODs through to signature.

Sites 7 and 27-34 - Continue Petroleum Corrective Action (PCA) program cleanup projects.

Sites 17-26 and 36-40 - Continue RCRA cleanup and closure.

FY99

Sites 1, 3, 12, 13 and 35 - Remedial Design phase.

Sites 7 and 27-34 - Complete PCA program cleanup projects.

Sites 17-26 and 36-40 - Complete RCRA cleanup and closure.

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	5	5						
RI / FS		5						
RD		8						
RAC		6			1			
RAO		6						
IRA	1(1)	4(4)	3(4)	3(3)	2(2)			
RC		9			1			
Cumulative % RC	0%	90%	90%	90%	100%	100%	100%	100%
RCRA CA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
RFA	1							
RFI / CMS		1						
DES			1					
CMI		1						
CMO								1
IRA								
RC	1							1
Cumulative % RC	50%	50%	50%	50%	50%	50%	50%	100%

TWENTYNINE PALMS MARINE CORPS AIR TO GROUND COMBAT CENTER

TWENTYNINE PALMS, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CMC
 Size: 595,367 Acres
 Funding to Date: \$28,828,000
 Estimated Funding to Complete: \$3,705,000



Base Mission: Provides support to Marine Corps Air Ground Task Forces and Marine Corps tenant activities; administers the Marine Corps Air Ground Combined Arms Training Program; provides training in communications and electronics

Contaminants: Heavy metals, POLs, volatile and semi-volatile organic compounds

Number of Sites:	Relative Risk Ranking of Sites:				
CERCLA:	54	High:	1	Not Evaluated:	1
RCRA Corrective Action:	0	Medium:	3	Not Required:	43
RCRA UST:	9	Low:	15		
Total Sites:	63				

Sites Response Complete: 43	

EXECUTIVE SUMMARY

Marine Corps Air to Ground Combat Center (MCAGCC) Twentynine Palms is located five miles north of Twentynine Palms, in San Bernardino County, California. The MCAGCC provides logistic and administrative support as well as training to Fleet Marine Air and Ground Task Forces. Primary operations that contributed to contaminated sites at the facility were vehicle, aircraft, and communications and electronics equipment maintenance. Current operations include pollution prevention technologies to prevent further contamination. Petroleum products have been disposed of at various sites around the activity. This is of concern as contaminants can migrate to usable water supplies. A Cease and Desist Order was issued by the California Regional Water Quality Control Board (CRWQCB) for Site 18 (Crash Training Pit No. 4) in August 1987 and January 1990.

The lands surrounding MCAGCC Twentynine Palms are mostly agricultural and rural residential areas interspersed with some recreational reserves. Contaminants can migrate to usable groundwater supplies at MCAGCC Twentynine Palms through vertical subsurface percolation. Groundwater is the only source of water for public water supply systems at the station and the nearby city.

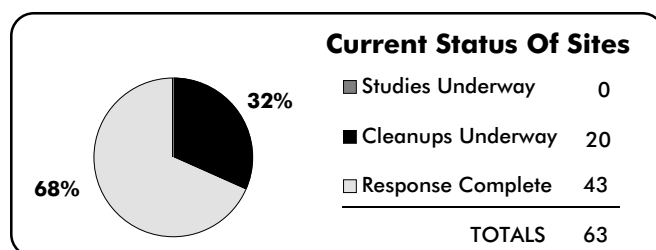
Currently there are 63 Installation Restoration Sites at MCAGCC Twentynine Palms. Fifty-four sites are designated as CERCLA sites and nine as RCRA USTs. SI Reports for forty-seven sites were finalized in FY96. The SI Report recommended No Further Action determinations at 30 of these sites, nine of which have received regulatory concurrence. Three sites have completed the cleanup phase and two sites are undergoing cleanup with closeout scheduled for FY97. Bioremediation is ongoing at 15 sites with cleanup completion expected within five years.

A Technical Review Committee (TRC) was formed and information repositories were established in two locations in November 1991. A Community Relations Plan (CRP) was completed in January 1994.

MCAGCC Twentynine Palms was initially designated as a Base Realignment and Closure (BRAC) receiving facility. However, the Department of the Navy (DON) later decided to move the activities it was to receive to another facility.

MCAGCC Twentynine Palms was selected by the Department of the Navy as one of five installations to participate in a Pilot Expedited Environmental Cleanup Program (PEECP). The program was established by Senate Appropriations Bill 102-154 and was initiated in May 1992. The DON's plans for expediting cleanup projects include creative uses of the CERCLA process, such as an emphasis on removal actions to accomplish cleanups concurrently with investigations; innovative approaches to the CERCLA process, such as the use of "Observational" and "Data Quality Objective" (DQO) approaches; expedited document reviews; and greater interaction with regulatory agencies. The program encourages the use of expedited contracts, innovative technologies, and innovative approaches to solving problems. Procedures and technologies successfully implemented as a result of this program will be applied to future investigations and remediations.

In implementation of the PEECP program, the station has been emphasizing removal actions to accomplish cleanups concurrently with investigations or a "remediate as you investigate" strategy. In the investigation of large volume fuel spills, the Marine Corps has been able to coordinate the use of borings installed for investigative purposes, which otherwise would have been backfilled at the study's completion, for installation of vent wells and soil gas monitoring points for pilot studies and full scale treatment. This has resulted in a savings in excess of \$1 million and at least one year reduction in the cleanup schedule. This approach is also being utilized on tank and other fuel spill investigations. A full scale bioremediation facility was completed for treatment of non-hazardous petroleum-contaminated soil generated as a result of cleanup activities at sites. Regulatory agencies have approved remediated soil for use as landfill cover or roadbed fill.



TWENTYNINE PALMS MCAGCC RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Both surface water and groundwater contamination are of concern in the MCAGCC Twentynine Palms area. There are two groundwater aquifers within MCAGCC Twentynine palms. They are separated by a fault which impedes movement of groundwater between the aquifers. Water supplies for the activity are extracted from wells in the Surprise Springs area aquifer. Surface water drainages in the area of Twentynine Palms, while normally dry, can become a pathway for surface migration of contaminants during the infrequent but intense thunderstorms which occur several times a year. Subsurface percolation of these surface waters and direct precipitation, containing potential contaminants, can migrate into the water table (which is more than 200 feet below the surface in most areas, but as shallow as five feet beneath dry lake beds). Contaminants reaching the water table can flow horizontally downgradient (south) to various wells using the aquifer as a domestic water supply source (0-5 miles south of MCAGCC Twentynine Palms). Groundwater is the only source of water for public water supply systems at the activity and the nearby city. Therefore, groundwater contamination would be a potential threat to human health.



NATURAL RESOURCES - The native flora and fauna at the activity are typical of a North American desert community. The predominant plant species are the creosote bush and desert annuals. Areas most affected by a negative impact on the plant communities are the Surprise Springs and Wood Canyon areas. The vegetation has diminished somewhat due to soil compaction caused by vehicular movement. The primary types of wildlife are rodents, reptiles, and birds. Larger mammals are only found on station occasionally due to the lack of water sites. Rare, endangered, or threatened species in this area include four species of animals. Indirect contact with contaminants through the food chain is a potential threat to these species.



RISK - Baseline Human Health Risk Assessments and Ecological Risk Assessments were conducted as part of the Site Inspections (SIs). In the Department of Defense (DOD) Relative Risk Site Evaluation Model one site was ranked as a high relative risk site. The high ranking was due to contaminated groundwater. Analytical data indicates off-site migration of contaminated groundwater in the MCAGCC Twentynine Palms mainside area aquifer. This groundwater is rated as available for potential beneficial use by the State Water Board. However, the mainside area groundwater aquifer is not currently used for human consumption. Since there is no groundwater migration between the unused mainside aquifer and the domestic water supply source of the Surprise Springs aquifer, there is no risk to human health.

REGULATORY ISSUES



LEGAL AGREEMENTS - A RCRA Facility Assessment (RFA) was initiated in April 1991 and terminated in July 1992 when the facility decided not to apply for a RCRA Part B Permit.

The California Regional Water Quality Control Board (CRWQCB), Colorado River Basin Region, issued a Cease and Desist Order for Crash Training Pit No. 4 (Site 18) in August 1987 and again on January 1990. Bioventing was initiated at the site in December 1993 and is expected to be completed in FY00. No further action is expected at the site.



PARTNERING - To facilitate Environmental Program efforts at MCAGCC Twentynine Palms, Quarterly meetings were held which are attended by all involved parties. Due to the reduction of work remaining at the activity, meetings are now held on an as needed basis. There is no Memorandum of Understanding or FFSRA between the Marine Corps, Department of the Navy (DON), Cal-EPA Department of Toxic Substances Control (DTSC), and the CRWQCB.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - Technical Review Committee (TRC) was formed in November 1991 and meets once a year. The TRC has not been converted to a Restoration Advisory Board (RAB). Marine Corps base will establish a RAB if the public indicates an interest in establishing one.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in January 1994.



INFORMATION REPOSITORY - An Information Repository and an Administrative Record were established in November 1991. Information Repositories were established at two locations: the Twentynine Palms Public Library and the Base Library. Information from the Administrative Record is contained in the information repositories.

BASE REALIGNMENT AND CLOSURE

BRAC - At one time, the DON had plans to move some activities from Marine Corps Air Station (MCAS) Tustin, which was being closed under the Base Realignment and Closure (BRAC) program, to MCAGCC Twentynine Palms. The SIs for Sites 3-5, 8, 10, 17-20, 22, and 25-27 at Twentynine Palms were funded with BRAC II funds as these sites needed to be investigated and remediated before MCAS Tustin activities could be incorporated. Since the SIs were funded, however, DON decided to move the MCAS Tustin activities to Naval Air Station (NAS) Miramar instead. Therefore, Navy environmental restoration (ER,N) funds are used for work at these sites.

TWENTYNINE PALMS MCAGCC HISTORICAL PROGRESS

FY86

Sites 1-20 - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA), completed in October 1985, identified 20 potentially contaminated sites at MCAGCC Twentynine Palms. Thirteen sites (Sites 1-6, 9, 12, 13 and 17-20) were found not to pose a threat to human health or the environment, and no further action was recommended. Site 7 was recommended for a removal action. Six sites (Sites 8, 10, 11 and 14-16) were recommended for further investigation. Based on EPA review comments of the IAS, four sites (Sites 1, 7, 18 and 19) were later added to the Site Investigation (SI).

Sites 21-54 - Thirty-four potentially contaminated sites at MCAGCC Twentynine Palms were identified after the IAS. Based on discussions with regulatory agencies and on the Department of the Navy's (DON's) internal review, all 34 sites were recommended for further investigation.

FY88

Sites 1-22, 25-27, 29, 30, 33-36 and 39-54 - A Confirmation Study (CS), Verification Step Report (equivalent to an SI), was completed in FY88. The study recommended further investigation for all sites. Further investigation was scheduled for FY93.

FY91

USTs 1-9 - A Site Assessment Report Phase I, for 15 tank locations at MCAGCC Twentynine Palms was completed in September 1991. Nine of the fifteen locations (Underground Storage Tanks 1-9) were recommended for additional investigation and remediation before a request for closure. The nine UST locations were identified as having petroleum products contamination at the following locations: one tank at Building 1851 (UST 1); four tanks at Building 1630 (UST 2); four tanks at Building 1573 (UST 3); one tank at Building 1559 (UST 4); two tanks at Building 1440 (UST 5); four tanks at Building 1420 (UST 6); two tanks at Building 1400 (UST 7); six tanks at Building 1138 Gas Station (UST 8); and one tank at Building 1065 (UST 9).

FY92

Sites 31, 32, 37 and 38 - SI phases were completed.

FY93

Sites 1-54 - SI initiated.

FY94

Site 16 - An SI was completed.

USTs 1-9 - A Remedial Investigation for bioventing all nine UST sites was completed.

Sites 17 and 18 - Removal actions consisting of bioventing were initiated and will be completed in FY00.

UST 8 - Corrective measures initiated and will be completed in FY00.

FY95

Sites 2 and 3 - Removal actions consisting of bioventing were ongoing.

Site 14 - Two Interim Remedial Actions (IRAs) were completed. These included controlling access to the site and adding drainage controls.

USTs 1-9 - Investigations were completed at all nine UST sites.

USTs 2, 3, 5, 6 and 8 - Corrective measures consisting of bioventing were initiated and will be completed in FY00.

USTs 7 and 9 - Corrective measures were initiated at UST 7 (bioventing) and UST 9 (bioheap) and will be completed in FY98.

FY96

Sites 10-17, 19-29, 31, 33-36, and 39-54 - SIs were completed.

Sites 19 and 23 - Completed IRAs.

Sites 4, 10-15, 19, 21, 23, 27-29, 31 34-36, and 39-51 - Response Complete.

Sites 8, 22 and 54 - Cleanup completed.

UST 4 - Completed IRA and Corrective Measure Implementation.

USTs 5 and 6 - Completed Corrective Measure Operation.

PROGRESS DURING FISCAL YEAR 1997

FY97

Site 22 - Completed RI/FS.

Sites 8 and 21 - Completed IRAs.

Sites 5, 22 and 25 - Completed RAC.

Site 25 - Completed Remedial Action Operation (RAO). Response Complete.

Site 52 - Response Complete.

PLANS FOR FISCAL YEARS 1998 AND 1999

FY98

Sites 6 and 24 - Additional Investigation.

Sites 5, 7 and 8 - Complete five IRAs.

Sites 7 and 8 - Response complete.

USTs 4 and 7 - Complete IRAs.

Site 5 - Response complete by land use restriction.

Site 7 - Complete RAC

Sites 5, 7 and 8 - Complete RAO

FY99

USTs 1138 and 1573 - Continue bioventing

Site 18 - Continue bioventing

Site 6 - RD

Site 17 - RAC

Sites 2, 17 and 22 - RAO and Response Complete

UST - IRA

TWENTYNINE PALMS MCAGCC PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	54							
RI / FS		1						
RD	1			1				6
RAC	2	3	1	1	1	1		4
RAO		1	3	3	1	1		1
IRA	3(4)	2(2)	3(5)		4(4)	1(1)	1(1)	12(15)
RC	40	1	3	3	1	2		4
Cumulative % RC	74%	76%	81%	87%	89%	93%	93%	100%
UST	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
SA	9							
CAP								
DES	8							1
IMP	2				2		1	1
IMO					3			3
IRA	1(1)		2(2)	1(1)	5(5)		4(4)	4(4)
RC	2				3			4
Cumulative % RC	22%	22%	22%	22%	56%	56%	56%	100%

WARNER SPRINGS SURVIVAL, EVASION, RESISTANCE AND ESCAPE CAMP

WARNER SPRINGS, CALIFORNIA

Engineering Field Division/Activity: SWESTDIV
 Major Claimant: CINCPACFLT
 Size: 60 Acres
 Funding to Date: \$0
 Estimated Funding to Complete: \$2,910,000



Base Mission: Provides training in survival, evasion, resistance and escape for Pacific fleet Naval Aviators (AIRPAC) and other personnel

Contaminants: Motor oil, lubricants, solvents, paint, ethylene glycol, hydraulic fluid, batteries, used rags and household rubbish (lead and acid)

Number of Sites:

CERCLA: 1
 RCRA Corrective Action: 0
 RCRA UST: 0
 Total Sites: 1

Relative Risk Ranking of Sites:

High: 0 Not Evaluated: 0
 Medium: 0 Not Required: 0
 Low: 1

Sites Response Complete: 0	

PROGRESS AND PLANS

CERCLA	FY96 and before	FY97	FY98	FY99	FY00	FY01	FY02	FY03 and after
PA / SI	1							
RI / FS								1
RD								1
RAC								1
RAO								
IRA					1(1)			1(1)
RC								1
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%